



Principles of Occlusion and Dento-Facial Relations.

By CALVIN S. CASE, M.D., D.D.S.

I cannot better emphasize the claims of this article than by prefacing it with a portion of a paper entitled, "Typical and Atypical Occlusion of the Teeth in Relation to the Correction of Irregularities," by Dr. Matthew H. Cryer, Professor of Oral Surgery in the University of Pennsylvania, read before the New York State Dental Society, and published in the *Dental Cosmos*, September, 1904.

It should be carefully studied in its general and specific teaching of the anatomical, physiological and surgical relations to Orthodontia, especially by all who essay the regulation of teeth on the basis of a "normal occlusion" without extraction, accomplished principally with an unrestricted action of the intermaxillary force.

It is certainly very gratifying to me, as it doubtless must be to other experienced orthodontists, when a man of Dr. Cryer's well known ability puts his big shoulder to the wheel to sustain the well established principles of dental development, orthopedia and esthetics, against that which time will surely place among the unfortunate examples of false teaching.

Extract from Dr. Cryer's Paper.*

"During the past three years many papers have been published on the subject of irregularities of the teeth and their treatment, and while

*We are indebted to Dr. Cryer and the *Dental Cosmos* for the use of Dr. Cryer's illustrations.—EDITOR.

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some of them are of unquestionable value, covering points of capital importance in the field of orthodontia, the author feels, however, that due consideration has not always been given to the outlines of the face which are molded upon the topographical anatomy of the facial bones, the alveolar processes, and the teeth.

"Some writers have given fixed rules for changing the position of the teeth, without bearing in mind the fact that each case demands the adoption of a special mode of procedure in its treatment. This wholesale correction by rule is causing many of the young members of the profession to perform operations which are damaging to the patient and which

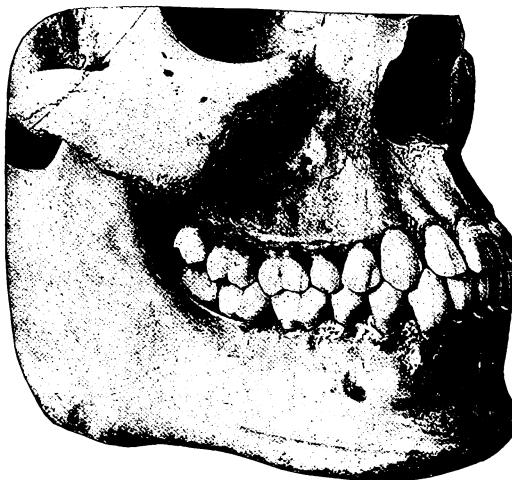


Fig. 1.

Upper and lower jaws of a negro skull, showing considerable prognathism.

cannot be rectified in later years. It is for this reason that the writer desired to present a paper which would bring out a general discussion upon 'Typical and Atypical Occlusion of the Teeth.'

"In the correction of irregularities of the teeth and their processes, three fundamental principles should always be considered. First, the operator should carefully regard the outlines of the face, especially as they should appear in early adult life; the difference in treatment demanded by the male and female type should be observed; the variations in each individual should be considered, and each case treated according to its own requirements. Second, due consideration should be given to the appearance of the teeth when the lips are open, as in talking and laughing. Third, the importance of occlusion in regard to vocalization, appearance, and mastication. As malocclusion often brings serious

pathological conditions, such as impacted teeth, neuralgia, etc., this condition should receive most careful attention. It is the writer's opinion that the surgeon should have a full knowledge of the superficial and internal anatomy of the maxillary bones, with that of the alveolar process, which is only the connecting structure between the teeth and the bones proper. He should also be thoroughly conversant with the physiology of this region and with the pathological changes of which it may become the seat.



Fig. 2.

Side view of upper and lower jaws of a Caucasian skull, showing typical occlusion of the teeth.

Typical vs. Actual Anatomy and Occlusion.

"After close study of the forms of various bones of the human skeleton, both disarticulated and articulated, and the open spaces of the face, such as the oral cavity, the orbits, the nasal chamber with its associated pneumatic sinuses and cells, etc., the writer came to the conclusion that typical anatomy as taught in text-books is more ideal than true, and is something different from that with which the surgeon comes into daily contact, and it is his opinion that this divergence applies to a notable extent in reference to the jaws and teeth at rest and in occlusion.

"In order to bear out this statement a few illustrations will be given

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showing the typical anatomy of the external and internal structures of the jaws and the occlusion of the teeth.

"The illustration Fig. 1 is from a slide kindly loaned by Dr. I. N. Broomell, from a photograph of a negro skull which is in his possession. The reason for showing this picture is the fact that various authors give it as an illustration of normal occlusion of the teeth, omitting to state that it is from the negro race—in other words, that it belongs to a race more or less prognathic. The occlusion of the anterior teeth shows that it belongs to this type of skull; it is a fine specimen, except that the upper second and third molars do not occlude typically with the lower third molars, even according to the negro type.

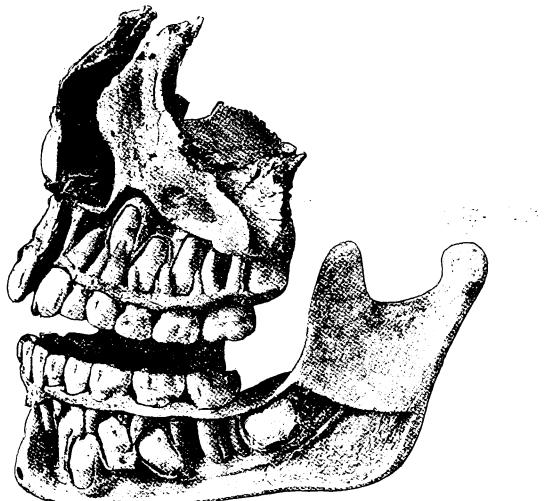


Fig. 9.

Side view of the upper and lower jaws of a child about seven or eight years of age, showing the deciduous teeth, the first molars, and the germs of other permanent teeth.

"Fig. 2 is a side view made from an almost perfect skull of a white woman. The teeth are so nearly typical in occlusion that but a few persons have found any fault with the specimen. The incisor teeth may possibly protrude too much to be in harmony with some Caucasian faces. The teeth, especially the anterior ones, must be in harmony with the general outline of the face and lips. In the general occlusion it will be found that each tooth of the upper jaw comes into contact with two teeth of the lower jaw, except the third molar, while each tooth of the lower jaw comes into contact with two of the upper teeth, except the central incisors. The interlocking of the premolars and the molar teeth is ideal.

Views of the Moving of Teeth in Orthodontic Operations.

"Some orthodontists speak of moving the teeth inward, outward, forward, or backward, as though they were dealing with plain porcelain teeth set up in wax on a mechanical articulator, without taking into consideration the anatomy, physiology, or pathological conditions presented in the jaws or the general system.

"The writer can readily understand how teeth can be moved forward, as a rule, by orthodontists, as that is the direction of their general or usual movement during development or eruption into their proper posi-

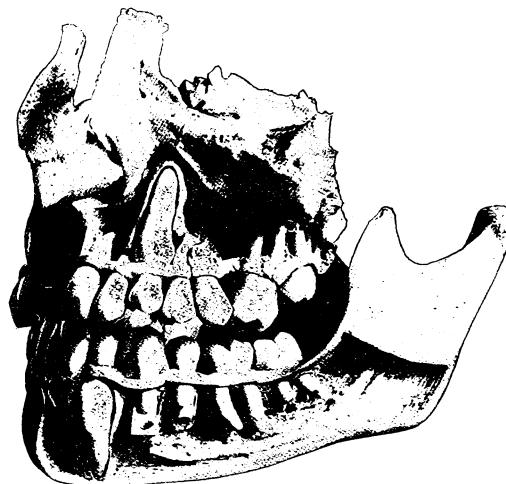


Fig. 10.

Side view of upper and lower jaws of a child about twelve or thirteen years of age.

tions. But he doubts the ability of any man to successfully move a lower first molar backward half its width when the other molars are in position. It may be possible—though it is somewhat doubtful—for the lower first molar to be moved half its width backward in the mouth of a child about seven or eight years of age, but your essayist fears serious results even in such a case.

"Fig. 9 is from a specimen of jaws belonging to a child **seven or** eight years old. We find all the deciduous teeth in position, also the first molar. The developing crown of the second molar is just posterior to it. The germ of the third molar is not shown. Suppose it were possible to move the first molar backward half its width, would it not interfere very materially with the second molar by disturbing its true position—by carrying it backward and turning it over to a greater or less extent?

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"Fig. 10 is from a similar preparation, of a child about twelve or thirteen years of age. If the first molar had been moved backward half its width, at the age of seven or eight years, the second molar would have been carried back with it. This would not have allowed proper space for the third molar, which would more than likely have become impacted.

"Fig. 11 is a radiograph taken from a cleaned specimen of the left side of the lower jaw showing the teeth in their position with the cancellated tissue. One might well imagine that a modern orthodontist had moved the first molar half its width backward or held it in such a man-

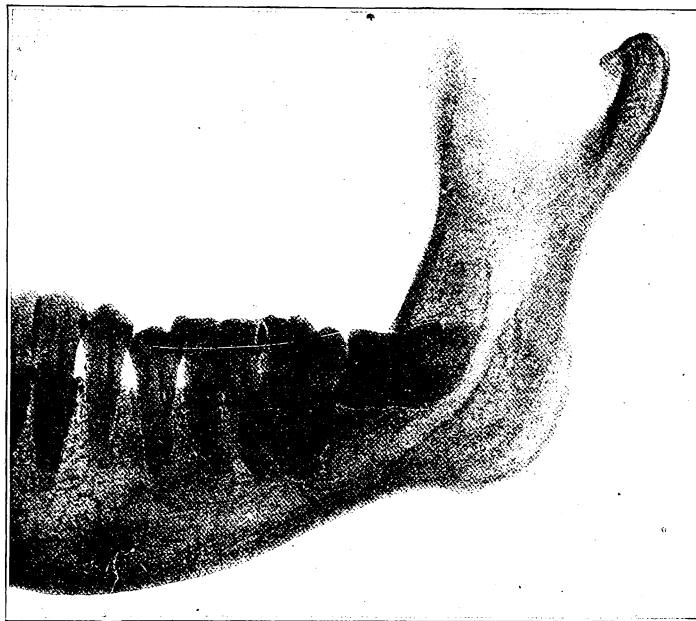


Fig. 11.

From a radiograph taken from a cleaned specimen of the left side of the lower jaw, showing an impacted third molar.

ner that it could not advance. Whether this was done by a mechanical appliance or was the result of pathological causes, the tooth was held and impaction resulted. If the cancellated tissue be examined, as seen in the X-ray picture, it will be noticed that it is more dense around the first and second molars than anteriorly to these teeth. As the result of an inflammatory condition the cancellated tissue has become united with the cortical bone, thus making another factor in preventing its sliding forward. It will

be noticed that the roots of the molar teeth are also thickened by the over-action of the cementoblasts caused by this inflammatory condition.

Extraction for the Correction of Irregularities.

"Many writers, especially of late, claim that irregularities of the teeth should always be corrected without the extraction of one or more teeth, as 'Nature never puts teeth into a mouth that do not belong to that physiognomy.' Your writer thinks this is doing Nature a great injustice; many teeth are found within the mouth which should be removed, not only for the correction of irregularities but for the general comfort and health of the patient. Modern civilization demands that we live contrary

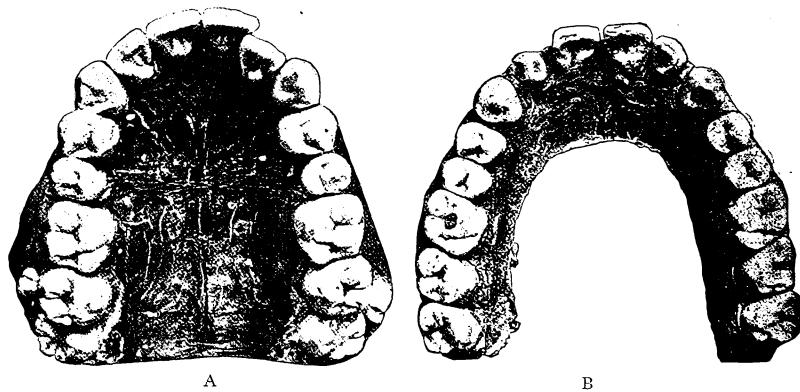


Fig. 13.

Made from two upper jaws, showing a large amount of tooth tissue in the smaller jaw, A, and much less in the larger jaw, B.

to rather than in accordance with Nature, and so long as this is so, we cannot blame Nature for existing irregularities or depend entirely upon her for beneficent results. Our numerous dental and medical colleges testify to the necessity of assisting Nature to become reconciled with modern methods of living.

"Fig. 13 is made from two photographs of upper jaws taken on the same plate. These pictures are to demonstrate that a small jaw can be crowded with large teeth, while a large jaw may have small teeth with space between them. It has been given as a reason for this condition that a child may inherit the jaw of one parent and the teeth of another, and for lack of a better explanation it may be well to accept this one for the present.



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"From a practical standpoint it matters not why such irregularities exist; they are there, and must be corrected. Notice the size of the teeth in the left picture. Beginning with the incisors and passing back-

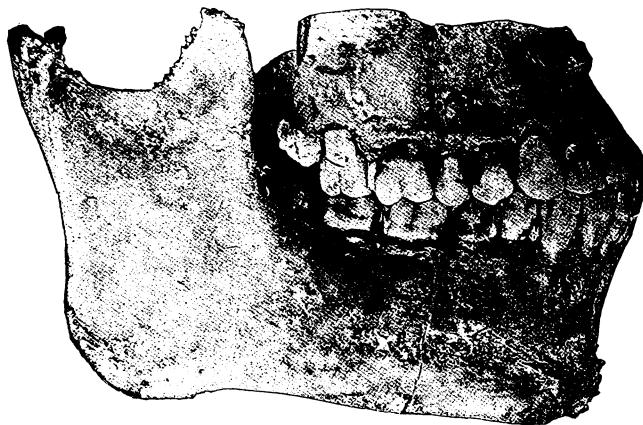


Fig. 14.
Upper and lower jaws in occlusion.



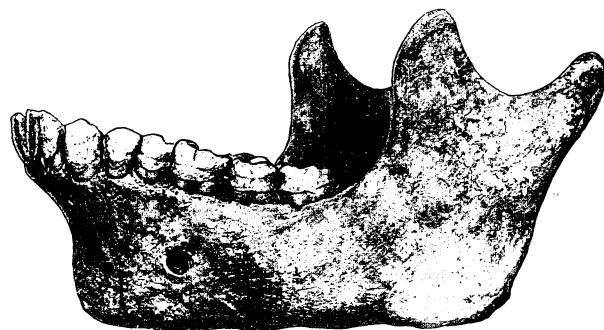
Fig. 23.

View of the under surfaces of skulls, showing difference between Fan Tribe West African skull and the Caucasian.

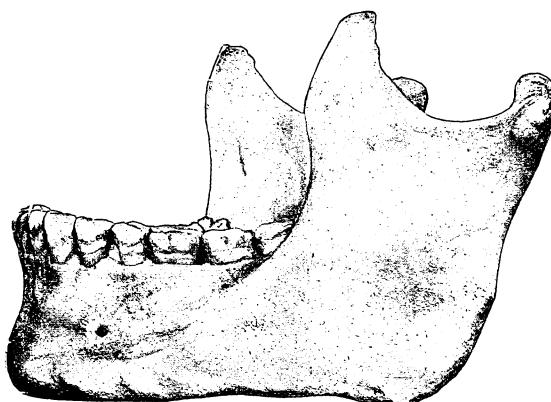
ward, the first premolar is extraordinarily large, as are also the molar teeth; there seems to be too much tooth tissue, as in addition two rudimentary fourth molars can also be seen. What would the non-extractor do with these two teeth? Would he endeavor to place them in their

regular position, as shown in the illustration Fig. 25, or would he not rather acknowledge that these teeth should be extracted because they interfere with the general hygiene of the mouth?

"Fig. 14 is a lateral view of the left picture of Fig. 13. The teeth are in occlusion with its mate, the lower jaw. It has been claimed by



A



B

Fig. 24.

Two mandibles—A, from a Fan Tribe West African negro; B, from a Caucasian, showing difference in position of teeth relative to the ramus, mental foramen, and symphysis menti.

many that if the first molars or premolars be properly locked, the other teeth will be in good occlusion. The writer cannot agree with these two assertions. The illustration before us shows that the first and second molars of each jaw are typical in occlusion as well as the premolars. (The molars and premolars on the opposite side are in equally good

occlusion.) If the above rules are to be followed, then the canine and incisor teeth should be correct, but they are not to be found so in the skull from which this illustration was taken. The incisors are in occlusion, edge to edge, instead of the upper one overlapping the lower one. A large amount of tooth tissue was shown in the upper jaw, and a large quantity in proportion in the lower jaw. In order to have had proper occlusion it would have been necessary to have lost tooth tissue laterally, in the lower jaw. If this be granted, then the question arises, When should it have been lost, and what tooth or teeth should have been extracted?

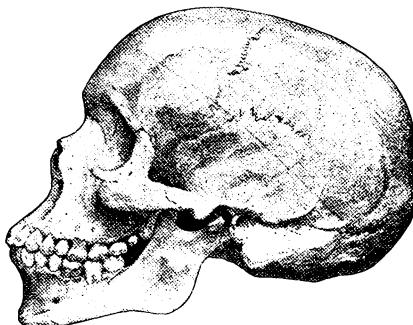


Fig. 25.

Side view of a prognathous negro skull with eighteen teeth in the upper jaw.

Characteristic Features of Caucasian and Negro Skulls.

"Fig 23 is made from the under surface of two skulls. The one on the left is that of a Fan Tribe West African, the other is from a Caucasian. They differ greatly in the shape of the roof of the mouth and the line of the occluding surfaces of the teeth. For these types of skulls they are normal in the arrangement of the teeth, with the exception of those lost by decay. The line of the occluding surfaces of the white skull is too nearly circular, however, to be termed typical. The special difference in these skulls is this: In the negro, if the outer line of the zygomatic arch be carried around until it intersects the teeth, that line will be near the anterior surface of the second molars; while in the other skull the line would be in front of the first molar, showing that the teeth are carried forward in the negro skull the width of a molar tooth.

"Fig. 24 is made from two mandibles. The upper one is from the same Fan Tribe negro as shown in Fig. 23; the lower one is from another

Caucasian skull. If the position of the third molar of the negro jaw be examined, it will be seen that there is room for another molar back of the third, while the mandible of the white skull the third molar is far back, leaving no room for another tooth. In the negro jaw the mental foramen will be found below the first molar, while in the white jaw it is on a line drawn downward from between the premolars, showing again that in the negro skull the teeth are carried forward about the width of a molar tooth.

"Fig. 25 is from the skull of another negro who died while in the Philadelphia Hospital. The prognathism is not so marked as in the one



Fig. 26.

From photograph of a lad suffering from hypertrophy of the gums and alveolar process.

belonging to the Fan Tribe West African. The mental foramen in this case is situated on a line between the second premolar and the first molar. In the upper jaw there are eighteen teeth, the two most distal being rudimentary fourth molars. Barring these fourth molars, all the other teeth are in good occlusion. If this condition of the teeth were exhibited in the white race, which would give the appearance of that shown in the next figure, it would be good surgery to remove the upper and lower premolars or the upper and lower first molars on each side.

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Fig. 27.

From photograph taken three weeks after removal of the pathological tissue.

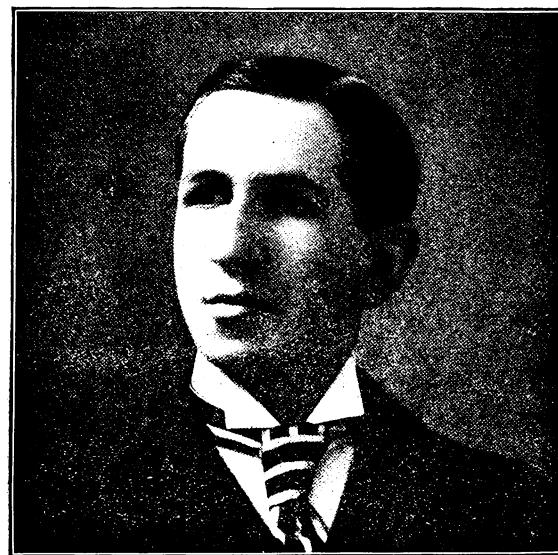


Fig. 28.

From photograph taken six years after operation upon the person represented in Fig. 26.

Prognathous Appearance Caused by Hypertrophied Gums and Alveolar Processes.

"Not having an anatomical specimen showing this kind of prognathism, your essayist has taken the liberty to show Fig. 26 which was made from the photograph of a boy about fifteen years old. When this picture was shown to one of our leading orthodontists, he declared it was that of a degenerate. The boy had a most marked hypertrophied condition of the gums and alveolar process of both jaws, which protruded forward. It was thought advisable to remove the alveolar process along with the teeth and gums, which gave him the appearance shown in the next picture.

"Fig. 27 was taken three weeks after the operation. The prognathism is lost, leaving somewhat sunken cheeks.

"Five years afterward he had a picture taken shown in Fig. 28. No one would claim that this picture was that of a degenerate.

"These last three illustrations have been exhibited in order to justify the removal of gum, tooth, and alveolar tissue, or even bone, to correct such deformities, even if artificial teeth have to be worn afterward."

Introduction by the Writer.

In order that the theme of this article in its various phases may be perfectly clear to the reader, it seems advisable first to define the writer's understanding and use of certain terms, from which may arise a question as to the exact meaning which they are intended to convey.

Dental Relations, when used in reference to occlusion, refers to the relation in position which the upper and lower teeth bear to each other.

Occlusion, refers to the closure of the teeth one upon the other; and "*Normal Dental Relations*," "*Normal Occlusion*," and "*Typical Occlusion*" refer to the standard anatomical occlusion.

The word *normal*, means: "according to rule," or, "that which is in conformity to natural law." It would seem that its meaning is not as definitely symbolical of an exact condition or position as "*typical*," though the difference is quite like splitting hairs. In reference to occlusion "*normal*," is a useful word because slight variations from the typically anatomical is the rule rather than the exception; as is well shown by the difficulty which some authors find in an endeavor to obtain a perfect illustrative specimen of that which they are pleased to term "*normal occlusion*," but which, *per se*, is an ideal anatomical occlusion.

In the usual masticating closure of buccal teeth that are not in malocclusion the cusps of one set strike well within the anatomically intended



spheres of their opposing sulci and depressions, but not necessarily in absolute typical form, and yet it is that which may be correctly termed a "normal occlusion," because it is according to the rule.

When the occlusion of one or more teeth varies from the normal to a degree that materially interferes with their function of mastication, and also when the points of the cusps are completely outside their normal interdigitating spheres, and possibly in perfect *mal-interdigititation*, they are in *malocclusion* and of course irregular. But the term *malocclusion* refers to only one phase of irregularity, as the teeth in "*normal occlusion*" may also be quite irregular, as will be shown.

Dento-facial relation, refers to the relation which the teeth in occlusion bear to the physiognomy. In normal dento-facial relation, or *dento-facial harmony*, the teeth and overlying features are in the most perfect harmony to the general facial outlines.

The terms *protrude* and *retrude*, with their suffixes, when used in reference to the relative position of the teeth, should always refer to the relation which they bear to the *normal dento-facial position*, and not to the normal occlusal position. Which is to say; that teeth in normal occlusion may be protruded or retruded; and also that the disto-mesial mal-relations of the teeth can in no instance be regarded as defining the character of an irregularity, nor as a guide to its *proper* treatment.

In the teachings of Dr. Edward H. Angle and his school, the standard of dental perfection is "*Normal occlusion*," which it is claimed is incompatible with any degree of irregularity," and "inseparable from normal facial outlines," (see page 9). In the writer's practice and teaching of orthodontia, the standard of dental perfection is "*Dento-facial harmony*," or "*Normal dento-facial relation*," which in the correction of irregularities *includes* "*normal occlusion*" whenever the presence of all the teeth is demanded; and always an occlusion whose cusps interlock or interdigitate, else function and retention would not be assured.

The writer has been so frequently misquoted and even openly accused of completely ignoring the important principles of occlusion, and of practicing and teaching the unlimited sacrifice of natural teeth to aid in correction of *alignment* rather than occlusion—or as one person put it, "whenever it seemed to make the job easier"—that I shall improve this opportunity to freely quote from former published papers that which for years has been the undeviating laws of my practice and teaching relative to these important questions in orthodontia.



Dental Relations.*

"In the correcting of all irregularities of the teeth with the view to their future usefulness and permanency of retention, occlusion is one of the most important factors for consideration in diagnosis and prognosis.

"In every case where the masticating teeth have established a fixed occluding position with cusps that interlock or interdigitate, whether it be typically normal in its relations or not, any change of that position necessary for the accomplishment of correction should place them in a new occlusal adjustment of self-fixation; else Nature either in her forceful efforts to perfect the function of mastication, or in response to the law of inheritance, will mar or wholly destroy the perfect results of treatment, even though they be artificially retained for years.

"In cases where one or more teeth of either jaw are crowded out of arch alignment, or are mal-turned and overlapping, if held in that position by the fixed occlusion of other teeth, any movement to accommodate them that is destined to affect the relative positions of the bicuspids or molars will usually require a concomitant movement of the occluding teeth of the opposing jaw."

In a large proportion of irregularities for youths there will be found no marked dento-facial inharmony; and even those facial imperfections that are caused by a mal-relation of the teeth in occlusion, will frequently disappear upon proper corrective treatment after being followed by the harmonizing influences of growth. Therefore in all of these cases, however jumbled the irregularity, the rule should be *imperative* that we strive to produce a typically normal occlusion—an attainment that is impossible where teeth are extracted merely to simplify the operation or under the mistaken impression that regulation cannot otherwise be accomplished.

"This does not mean that the principal and only object in practice is to attain to the production of a typical occlusion at the expense of producing or retaining a facial deformity; and especially when by the extraction of the first or second bicuspids we can place the operation within sure and easy possibilities of correcting the facial deformity and leave the patient with a good masticating occlusion—often so perfect that only an expert is able to discover that teeth are missing. Nor does it mean that the correction of the facial deformity or imperfection should be accomplished, if possible, at the expense of a masticating occlusion with cusps that interdigitate. One is quite as important as the other. The facial relations should be considered *first* because they frequently point the course to be pursued in the correction of the dental irregularity and occlusion, with

*Quotation from paper presented at the Institute of Dental Pedagogics in 1904, and elsewhere.



the concomitant correction of the facial outlines. They tell us whether we should move the upper or the lower teeth or both, or whether the desired correction is impossible or inadvisable without extraction. In my estimation the failure to extract teeth where demanded is quite as much malpractice as the extraction of teeth where not demanded.

"In the contemplation of obtaining room for the correction of malposed teeth, or for the freer eruption of the permanent teeth of youths by the expansion of immature arches, or by the extraction of temporary or permanent teeth, the harmonizing influences of growth with the natural enlargement of the alveolar arches should never be lost sight of. If dentists would give more thought to this subject and to the possibilities of judiciously enlarging the arches in keeping with the present and future development of other parts, there would not be that ruthless and uncalled for interference and that wholesale malpractice of extraction that now disgraces the science of orthodontia.

"With modern methods and principles of applying force to the teeth, the dental arches can always be sufficiently and harmoniously enlarged—at both the occlusal and apical zones if required—to place all the teeth in the arch, and in perfect alignment, however, extensively malposed. Therefore that phase of the question should never arise as an obstruction to correction without extraction. But that which should be considered under these circumstances is: Does the present condition, or will the future enlargements of growth demand or permit such an expansion with a concomitant movement of opposing teeth, if necessary, for the production of typical occlusion that will not leave a dento-facial deformity."

While it is probably a fact that the true anatomical relations of normal dental occlusion has long been well understood by dentists, and the importance of striving for its attainment in the correction of irregularities of the teeth has been dwelt upon by numberless writers and published in dental journals and text books, it has nevertheless remained for Dr. Edward H. Angle, of St. Louis, in his very admirable work entitled "Malocclusion of the Teeth and Fractures of the Maxillae," to present this phase of the subject in so forcible a manner that the dental profession—or at least that part of it who essay the regulation of teeth—have awakened to a fuller appreciation of its importance as a guide to correction and as a means of permanency of retention.

He places the relations of the first permanent molars as the real guide posts in diagnosis for determining or prognosticating the general relations of occlusion. Which is correct: *First*: Because the occlusal relations of the first permanent molars are usually in distinct evidence when other teeth which might be used as guides have not erupted, or are in decided

**Dr. Angle's
Teaching.**

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malignment. *Second*: The first permanent molars are the true bases of their respective dental arches, the relative antero-posterior positions of which are largely influenced by the relative mesio-distal positions which these teeth assume in the jaws. *Third*: With a very large proportion of all human beings—and especially those in whom there have occurred no abnormal disturbances in secondary dentition—the occlusion of the teeth is that which we have learned to recognize as typically normal; while the sizes and general position in Caucasian races are in comparative harmony with the physiognomies in which they are placed; so that we have always before us a fairly perfect type of anatomical and esthetic dental relations. *Fourth*: It being true that the relative mesio-distal positions of buccal teeth are dependent upon those of the first permanent molars, in connection with the fact that the first permanent molars are often subjected to early influences—such as the premature loss of deciduous teeth, etc., which causes them to shift their otherwise normal positions in the arch, we are led at once to the importance of preserving or establishing *early* the normality of these natural piers to the future arches, in order that normal occlusion, natural esthetic dento-facial relations and permanency of retention be attained in the correction of irregularities.

But this by no means is the whole story of the art of regulating teeth, as one might be led to infer by much of the literature of modern orthodontia. This is but *one* of the basic principles, and it refers only to that important class of irregularities in which the natural or inherited distomesial relation of the buccal teeth are—or were intended to be in the individual—in harmony with all dependent physical structures, and that correction with the proper maintenance or attainment of a normal occlusion without the loss of permanent teeth is indispensable to normal dento-facial relations.

This covers so large a class of irregularities that are met with in practice, and for which the proper correction of occlusion without extraction, is the only true treatment that it has proven a boon to many who in following its teachings with happy results have hailed it as a star leading them out of darkness.

As this principle has become formulated in no uncertain terms by men of undoubted ability and experience as *applicable to every character of irregularity*, and as definite mathematical rules have been laid down for the movement of teeth to accomplish this result in extensive and minor malocclusions, which all intelligences can grasp and easily put into practice, is it strange that it should be considered a great discovery, and men in every land should proceed to apply it, often with the most gratifying results?



Perhaps in this particular it can be said to have accomplished great good, and if the time ever comes when all who practice the regulation of teeth are able to sift out the true from the untrue, and join it with other truths that are of equal importance, then we will have indeed advanced in the art of orthopedic dentistry.

The teaching, that "normal occlusion" is necessary for the most perfect facial results in orthodontia, and the importance of its attainment, without extraction, which is possible with the intermaxillary force, has taken such hold of that portion of the dental profession who desire to regulate teeth, and who seem to see in the purchase and application of a few simple appliances all former terrors and difficulties smoothed away, and the awakening of a new era of fascinating employment with its limitless possibilities of fame and fortune, that the writer has deemed it advisable to point out in this paper some of its errors that are liable to lead to imperfect results, if not actual malpractice, and to show that outside of the important class of malpositions to which it most certainly applies, frequent inharmonious conditions arise in orthodontia, that demand the scientific application of other equally important principles of reasoning and treatment along distinctively different lines.

Teaching of the New School. Upon this new system of practice, based upon what I shall attempt to show is an erroneous theory of dento-facial harmony, has arisen the so-called "New School of Orthodontia," which teaches.

First: * "That extraction is wrong. That the full complement of teeth is necessary to the best results, and that each tooth shall be made to assume its correct relations with its fellows." Dr. Angle further says: "I shall try to impress you from the orthodontist's standpoint with the value of each individual tooth and with the *absolute necessity* of preserving the full complement of teeth, or its equivalent in *every case*. I shall try to bring conclusive evidence that the sacrifice of teeth for either the intended prevention or correction of malocclusion is not only wrong practice and fallacious teaching, but most baneful in its results. I shall further try to show that the full complement of teeth is necessary to establish the most pleasing harmony of the facial lines."

Second: That when the teeth are in normal occlusion, they are in correct positions in relation to the normal, and therefore regular.

Third: That when the physiognomy is perfect in esthetic outlines, it is a sure indication that the dental arches are complete and perfectly rounded and the teeth properly posed and in normal occlusion. On the

*Angle, New York State Dental Association, 1903. Published in the *International Dental Journal*, Oct., 1903, pages 730 and 749.

other hand, when the teeth and dental arches are in normal relation and occlusion with each other, it is a sure indication that the facial lines are perfect, or at least unmarred or undeformed by the position of the teeth and alveolar processes.

Fourth: That when we find the first permanent molars of youth in mesio-distal malocclusion, in correcting the occlusion by a reciprocal movement of both the upper and lower teeth with the intermaxillary force or otherwise, we can be assured that the labial teeth will take—or can be made to take upon this basis—the positions that are most desirable as regulated teeth.

This fourth phase of the theory I cannot make plainer than by quoting the words of Dr. Angle* in outlining the treatment of upper protrusions, and all cases where the upper molars and bicuspids occlude mesially to normal—*even after the eruption of the second molars*—“If the molars and premolars of the upper dental arch be moved distally one-half the width of a cusp of a molar or premolar, and the molars and premolars of the lower arch be tipped forward in their alveoli to the same extent, or one-half the width of a cusp of a molar or premolar, there will then be normal mesio-distal relations of these teeth, and if the arches in the region of the incisors be put in true at the same time, there will be harmony in their relations *and the best effect will have been produced upon the facial lines*. In other words, *we will have established normal occlusion with all its possible benefits?* This plan of treatment I have been practicing now but three years, and so pleased am I with it in the large number of cases that I have so treated that I no longer practice or believe in the plans that I formerly advocated, or that of gaining harmony in the sizes of the arches by the sacrifice of the two first premolars in the upper arch,” etc.

The above is evidently what Dr. Pullen refers to later as Dr. Angle's “radian star” discovery.

Again the particular phase of the theory which premises that normal dental occlusion is incompatible with irregularity and imperfection in contiguous facial outlines, has been extensively exploited by the “new school,” but in no place has the writer seen it so completely, concisely, and poetically stated as from the pen of Dr. H. A. Pullen, of Buffalo, New York:**

†“A few years ago there appeared upon the orthodontia firmament a radiant star which at first startled us by its brilliancy and grandeur, but which, as we studied and observed its splendor, gradually illuminated

*Angle. *The International Dental Journal*, October, 1903. Page 749.

**The italics in quotations are the author's.

†Pullen. Institute of Dental Pedagogics, 1904. Published in *ITEMS OF INTEREST*, July, 1904. Page 541.



our horizon, and shed its beneficent rays upon a grateful science, which so developed and improved in a short time that the star was considered an absolute necessity for its existence and further advancement.

"Gentlemen, that star was the theory of occlusion in all its relations to Orthodontia, as discovered by Dr. E. H. Angle, and it will stand as a monument to his untiring efforts for the advancement of orthodontia for all time.

"The advocates of occlusion make all their deductions from an ideal condition of normal occlusion, which condition, though a temporary one we grant, is yet sufficiently perfect to account for the normal eruption of the permanent teeth, through the influence of the inclined planes of the cusps of erupting antagonizing teeth; sufficiently permanent to account for normal interdigitation and unlocking of cusps of the permanent teeth through interdependence of the arches of the teeth; sufficiently permanent to be an integral, an important, factor in the laws of articulation as given us by the late Dr. Bonwill, and which are now taught in every college in the land; sufficiently permanent for the unaided retention of normal position of certain simple irregularities which have been corrected; sufficiently permanent to warrant the founding of a classification of irregularities of the teeth from the variations from this normal condition. By it, diagnosis and prognosis are rendered more accurate and scientific than by any other method; yes, and our experience justifies us in granting it sufficient permanence so that restoration of these ideal conditions by proper treatment *restores the ideal facial lines when faulty on account of malocclusion.*"

"The facial lines are dependent upon the normal occlusion for their normal relationship, hence the occlusion is the factor of prime importance rather than the facial lines.

"Shall we diagnose a case of irregularity from symptoms which disappear upon proper treatment of the occlusal relations of the teeth?

"We would have it understood that *normal occlusion is incompatible with any degree of irregularity, and with this ideal relationship, normal occlusion and normal facial lines are inseparable.*

"In the diagnosis of any case of malocclusion, the occlusion is first noted, and then the variation of the facial lines from the normal is considered as *caused by a variation from the normal occlusion, and is therefore a symptom of faulty occlusion.*"

The Writer's View.

Your writer has endeavored to make this teaching authentically plain, before proceeding to point out his reasons for believing that in some of its mandates it is *false teaching*, which if indulged in by any



considerable portion of the profession cannot help but retard the science of orthopedic dentistry.

What is "normal occlusion" of the teeth? We have recently been told that even among the dental profession, "probably less than three per cent know the correct occlusion of the teeth individually or collectively."*

In the writer's opinion, no educated dentist in this age needs to be told what normal occlusion of the teeth practically consists in; nor of its importance in every branch of dentistry. Furthermore the true anatomical and physiological principles of normal occlusion *per se*, in its important relation to orthodontia can hardly be called a "discovery" of recent years.

The perfect type of normal occlusion is beautifully illustrated in Dr. Cryer's paper. Let us select that shown by his Fig. 1, because that is the one which Dr. Angle and others have selected to represent "normal occlusion";** consequently it must have been considered a typically perfect specimen—as it most certainly is. But it is from a photograph of a *negro* skull, and while looking at it we can readily see—in the mind's eye—the characteristic prognathism of contiguous tissues and facial lines. Should the same character of occlusion and relation of the teeth and jaws occur in an otherwise perfect Anglo-Saxon type—as it occasionally does even to a greater extent—it would produce a facial effect that could not be diagnosed otherwise than as a protrusion of the upper and lower teeth, demanding treatment.

In a recent article,† while speaking of this same Fig. 1, Dr. Cryer says: "It is certainly normal to that particular negro, but it would be just as reasonable to give the occlusion of a horse or a dog and state that they are normal. The point is this: modern orthodontists show upon the screen a profile portrait of an Apollo Bellvedere as an illustration of manly beauty, and then follow it with Fig 1, the skull of a prognathous negro as an illustration of 'normal occlusion.'"

Dr. Cryer's Fig. 26, shows an extreme full upper and lower protrusion in an Anglo-Saxon type of physiognomy. There is no reason to suppose that the teeth were not in normal occlusion, as is frequently seen in less pronounced bimaxillary protrusions. We can also well imagine that the lower jaw of the patient, if dissected, would look quite like "A" in his Fig. 24, as compared to "B"; and in occlusion, similar to his Fig. 25.

Therefore is the statement of any scientific value, which says: "that

*Angle. *International Dental Journal*, October, 1903. Page 733.

**Angle. Fig. 33.—"Malocclusion of the Teeth and Fractures of the Maxillae."

†Cryer. *Dental Cosmos*, February, 1905.



normal occlusion is incompatible with any degree of irregularity?" and that "normal occlusion and normal facial lines are inseparable?"

If this were an argument of a case to be decided by an intelligent jury, we could safely rest here, without another plea, because the above presentment alone is sufficient in itself to disprove the whole finely spun theory based upon the premise that a typically normal occlusion is the diagnostic sign of true regularity and a condition therefore which should be our first thought and main effort to obtain, without extraction in the correction of all mesio-distal mal-relations of buccal teeth.

Moreover, the very principle that is laid down as the "proper treatment" in all disto-mesial malocclusions of the buccal teeth, is enough to vitiate the theory, i. e., a reciprocal retruding and protruding movement of all the teeth, if necessary, one-half the width of a bicuspid and more, even after the full eruption of the second molars; regardless of the facial effect which the dental arches *individually* produce, because—as we might be led to believe—such minor things as facial deformities that are caused by dental malpositions are only "symptoms which disappear upon proper treatment of the occlusal relations of the teeth."

In other places the writer has endeavored to teach that which may be verified to the satisfaction of any inquiring mind by a cursory examination of dental and facial relations everywhere to be found in the people about us, viz., that dento-facial inharmonies, not uncommonly to the extent of decided facial deformities, quite as frequently and extensively exist between the positions, sizes, and relations of teeth in normal occlusion, and the physiognomies of the individuals in which they are placed as between any of the other organs—the eyes, the ears, the noses—and the physiognomies of which, through the laws of heredity, they form a part.

The teeth in normal occlusion may not be irregular in their relations to *each other*; but what is irregularity of the teeth, broadly and truly speaking, if it is not malposition of the teeth in relation to the normal and esthetic, as well as the anatomical, and expressed by a dental marring or deforming of that perfect type which, from the birth of classic art, has appealed to the esthetic senses? On the other hand, what are the positions of teeth that produce facial deformities, if not in malposition and irregular?

In the writer's opinion the statement is irrefragable, that all of that large class of cases whose teeth are in normal occlusion, but with overlying facial contours protruded or retruded, from that of malrelations that slightly mar the esthetic beauty of otherwise perfect or imperfect faces, to that of the most pronounced dento-facial deformities that confront us, *must be considered irregular*, demanding correction, if the

science of orthopedic dentistry means anything beyond the correction of mechanical and anatomical occlusion for mastication alone.

There are many reasons for discountenancing this recently exploited theory that dento-facial irregularity necessarily means malocclusion, or that it is invariably due to an occlusion that is not normal in its dental relations, which has been denominated as one of the basic principles of the "new school," and, on the other hand, that normal occlusion of the teeth, natural or produced, "must of necessity result in the greatest possible perfection to facial outlines."

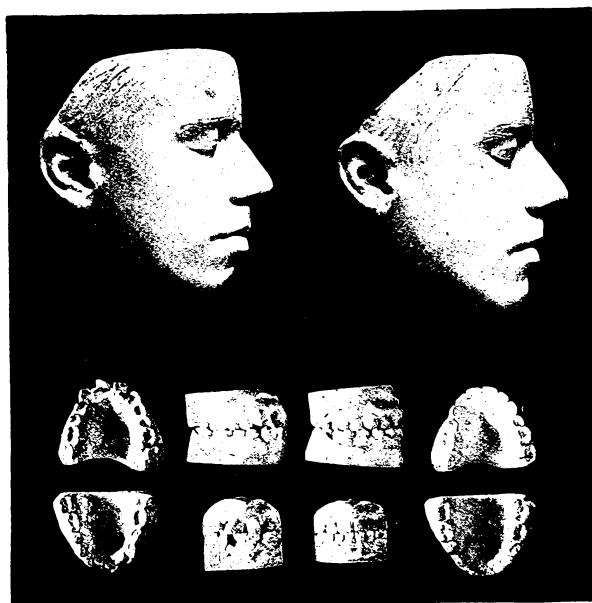


Fig. 1.

Argument Against New School Theories. Let us first consider a single simple reason which every one must see why these propositions are not true; viz.: *In a case that otherwise would have been* dento-facially perfect, the premature loss of deciduous teeth has permitted the upper and lower first molars erupting or drifting forward fully half the width of a bicuspid—and possibly more—and in that unnatural position assuming perfectly normal occlusion followed by the subsequently erupting buccal teeth. Now these teeth being the bases which have determined or are determining the antero-posterior



positions of the other teeth in relation to the normal, if taken as guides because of their normal occlusion, and the teeth in front—which under the circumstances have naturally erupted in malposition—forced to alignment, *can the result be otherwise than an abnormal protrusion of both the upper and lower teeth in relation to the physiognomy?*

Figure 1, which is one of many similar cases in the writer's practice, will serve to illustrate this condition. It will be seen that the original disto-mesial occlusion of the buccal teeth is normal, and notwithstanding the fact that the labial teeth are thrown into lingual malalignment, the overlying facial contours are decidedly protruding. As the arches are not materially contracted laterally, *could the alignment of the labial teeth—without extraction—do anything but enhance the already protruding facial outlines?*

The figure shows the same case after correction, with the first bicuspids, upper and lower, extracted; and notwithstanding the decided retrusion of the labial teeth and a slight retrusion of all the buccal teeth accomplished by a combination of occipital and intermaxillary forces, the facial protrusion is still not wholly reduced.

Therefore, though we have a typically normal occlusion—natural or produced—it may be accompanied with one of the most marked dentofacial deformities; as is frequently seen in full protrusions from constitutional and local causes.

These conditions in varying degrees—also full retrusions of the upper and lower dental arches, with the same normal disto-mesial relation and occlusion—we have about us everywhere; all of which are quite as susceptible of correction by orthopedic means as protrusions or retrusions of the upper and lower alone.

Perhaps some will say of the example cited, that the buccal teeth being in unnatural mesial malpositions should be retruded instead of a correction by extraction. That would be right if there were any way of determining that it was due to a local cause, providing that the condition were not too extensive and the treatment commenced early. But in the majority of bimaxillary protrusions that present for treatment, the condition is due largely, if not wholly, to constitutional causes, and in some of these cases that kind of treatment would mean a retruding movement of all the teeth, both upper and lower, fully the width of a bicuspid and possibly more, before the overlying protruded facial contours are brought to esthetic pose—an operation that should never be attempted for reasons that will be explained.

Judging from the literature that has thus far emanated from the "new school" we seem to be talking about a character of irregularity

which they do not recognize. All of their protrusions seem to be confined to the protrusion of the teeth of one jaw alone, and spoken of as "teeth in distal or mesial occlusion" belonging to Classes II or III of Dr. Angle's classification. Furthermore, they do not seem to recognize a protrusion or retrusion in which the teeth in the opposing jaw are ever in normal relations to facial outlines; but in their estimation, where the teeth of one jaw are protruded, the teeth of the other jaw are retruded, and vice versa; else why is it that they advise the invariable practice of an equally *reciprocal movement* of the upper and lower teeth in *all* cases of mesio-distal malocclusion of the buccal teeth?

Is it possible that the "discovery" of this peculiar "basic principle in orthodontia," arose through the discovery of the so-called "Baker



Fig. 2.

anchorage," and the possibilities of correcting occlusion in this way, which gave birth to the remarkable theory that there were only three classes of irregularities, and that the second and third classes only differ from each other in a reversal of a required reciprocal movement to correct the mesio-distal malocclusion and resultant facial deformity? Or was it no more than a *very peculiar coincidence* that these two "discoveries" were made at about the same time in the later part of the 90s?

The writer would dislike to think that the discovery of the distomesial intermaxillary force which was original with him, and published extensively in the early 90s, should, years later, be so misapplied, and its real usefulness be so misunderstood and overrated as to be the cause of

such a crass and misleading theory of dento-facial orthopedia as that expounded by the "new school of orthodontia."

Full (bimaxillary) protrusions and retrusions (see Fig. 2) are probably given no place among irregularities of the teeth by the new school, because the teeth being already in normal occlusion they claim this position "is incompatible with any degree of irregularity" and consequently the facial outlines which *appear* to us to be decidedly deformed *must* be correct as "normal occlusion and normal facial lines are inseparable."



Fig. 3.

Besides, if it is admitted that the teeth are really protruded in relation to the typical and esthetic position, though in normal occlusion, how is it possible to retrude all of those twenty-eight teeth (after the eruption of the second molars) to a degree that is recommended in upper protrusions, or to any appreciable degree, with the intermaxillary force, and with a system that has about abandoned the use of the occipital force?*

And even if it were possible without extraction to retrude the teeth sufficiently to properly reduce the dento-facial protrusion, it could not be accomplished without the strong probability of producing a decided distal inclination of buccal teeth with a dipping of occlusal planes sufficient to destroy masticating occlusion.

*Angle. *International Dental Journal*, October, 1903, page 751.

**Cases
from the
Author's Practice.**

Figure 3 is made from a few profile models of full protruding types selected from many in the author's practice. The effect of a receding chin is quite apparent, but this is often wholly due to a comparison of immediate relations, and partly from the contraction of the thick muscular tissues that cover the point of the chin, that always occurs with the effort to forcibly close the lips; all of which quite frequently disappears upon proper treatment, as is well shown by comparing Figs. 26 and 28 of Dr. Cryer's article. In all the five cases shown by the group of models, the buccal teeth were in normal distomesial occlusion, and in all, with the exception of one (shown in Fig. 1) the teeth were in fair alignment.



Fig. 4.

Figure 4 is made from the models of one of the above group of bimaxillary protruding types. It shows the common inclination of the labial teeth, and normal occlusion of the buccal teeth, found in this character of irregularity. It also shows the results of correction after the extraction of two upper and two lower bicuspids, and a lower central incisor. Yet with the amount of retruding movement of the labial teeth that was permitted by so extensive an operation of extraction, the deno-facial out-



lines are still far too prominent for esthetic perfection. Had the retruding movement been carried further, the original effect of a receding chin would have been wholly removed, as would that peculiar expression of the physiognomy which has led many to denominate this type as arising from mental and physical degeneracy.

I wish to say here that the models of Fig. 4 are from one of the most refined and cultivated young ladies it has ever been my fortune to meet. The father, a prominent lawyer, and the mother far above the ordinary, and both with no apparent dento-facial imperfection, though widely dissimilar in the character of their physiognomies.

In Dr. Cryer's Figs. 1, 14 and 25, will be seen the same labial inclination and normal occlusion of the teeth that is common in bimaxillary protrusions of the teeth. His Fig. 26 shows a characteristic profile of an excessive bimaxillary protrusion. Note the difference in the apparent prominence and relative attitude of the chin in his Fig. 28, which is wholly due to the retruding and harmonizing correction of the dento-facial area by surgical and prosthetic means, and which has perfectly resulted in a complete restoration of the normal expression of intellectuality.

It must be remembered that these are marked types, whereas a large majority of this character of irregularity are but slightly protruding, yet sufficient to produce an uncomely expression of the physiognomy, and which may frequently be corrected without extracting, with a proper combination of occipital and intermaxillary forces.

While in attendance at the California State Dental Association last year a conversation arose, on the side, with the proposition from one of the new school of orthodontists, that whenever the upper buccal teeth occluded mesially to normal, the lower were distal to normal, which, of course, is not uncommon, though by no means invariable, and if from local causes is usually due to the influence of the inclined planes of masticating cusps.

Right at that moment a dentist presented a model for information as to the correction of an irregularity. I saw at once that the teeth were *in perfect normal occlusion; in properly posed arches; and in fair alignment.* I asked, "What's the matter?" "Well," he said, "you would see pretty quick what was the matter if you saw the patient. *All over the mouth it is decidedly protruding.*" I said: "There is your answer, gentlemen."

At another time I was followed out from my clinic by a crowd to ask questions, etc. I was asked why it was that I ever extracted a lower incisor "when the sizes of the upper and lower natural teeth were *always*



in harmony," a statement with which I, of course, did not agree. At that moment among a large number of models of irregular teeth of various characters, that were presented for an opinion, there came one with typical occlusion and alignment; the lowers in perfect proximal contact, but with upper labial teeth—whose incisal edges slightly passed and in actual contact with the lowers—with wide interproximate spaces between each one of the teeth—a condition with that occlusion, that is impossible with harmony in size. In examining the models carefully, one could readily see that the lower teeth in size were all out of proportion to those of the upper.

Though in my practice I have frequently observed this disproportion in the typical size of the upper and lower teeth I have never seen it so decidedly expressed as by these models which I have since tried to obtain. Dr. Ray D. Robinson, of Los Angeles, an "Angle School" graduate and a gentleman, was present on both of these occasions and I am sure will vouch for the truth of the somewhat remarkable coincidences.

This condition of inharmony in relation to the typical sizes of the teeth is well exemplified by Dr. Cryer's Figs. 13 and 14.

It may be accepted as irrefragable that between the two extremes of a full protrusion on the one hand, and a full retrusion on the other, every possible dental and dento-facial inharmony will arise from local and constitutional causes. In the composite of these extremes as shown by the central profile of Fig. 2, are found the same normal occlusion with dento-facial harmony.

**Inharmony
Traced to
Heredity.** The inharmonies to esthetic facial outlines which are caused from malposed teeth are quite as diversified as inharmonies in size, form, and relation of the features of different physiognomies compared to the symmetrical.

How often do we see inharmoniously large noses placed upon faces whose entire features otherwise are built upon a far more delicate plan, and *vice versa*; and this is true, in varying degrees, of every feature and organ of the human body as compared to that which may be considered as the truly harmonious, or symmetrically formed type.

The surface—contour, form, size, and varying positions of the features which compose the human physiognomy are largely dependent upon the osseous framework; which in turn is, normally, either an inherent type, or the union of types which vary from harmony to the distinctively inharmonious. In all conditions of health and normality, these same influences and laws of development constitute the causes which govern and determine the relative sizes and forms of every organ and natural contour. From

these sources have mainly arisen all the distinctively different types of races and peoples. While the laws and influences of environment, variation, natural and artificial selection, etc., are by no means ignored, the immediate culminating cause of all physical organic forms—outside of abnormalities and slight anatomical variations—is that of heredity.

In America, where the union of inharmonious types has had full sway, we find a great variety of inharmonies in the physical forms of its inhabitants. On the other hand, among peoples such as the Japanese and the Chinese, whose native countries are not so extensively encroached upon with the intermingling of foreign types, individual inharmonies and variations from the racial type are comparatively uncommon. And while this characteristic type from our view point may be far from that which we recognize as the highest physical development in beauty and perfection

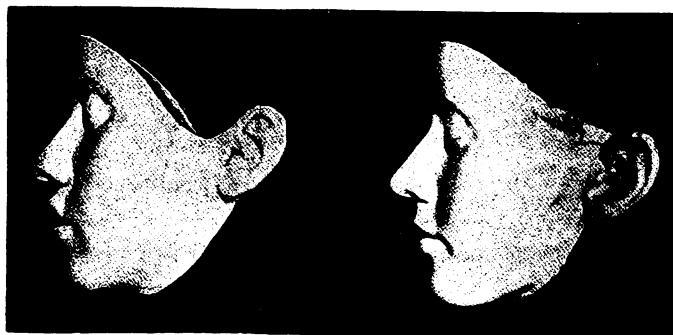


Fig. 5.

of form, it nevertheless is that which has normally arisen under the influences of heredity, natural selection and environment, and consequently to them it is a normal type. One of the characteristic dento-facial types that is common with a Japanese physiognomy is a depression or unesthetic retrusion along the upper part of the upper lip, in which the base of the rarely, if ever, large nose rests. This depression heightens the usual pronounced malar prominences and shortens the somewhat thin upper lip in its relations to the incisal ends of the teeth—the lip itself approaching an angle of 45 degrees.

In a number of cases which I have personally examined, the distomesial relations of buccal teeth were normal in occlusion, while the labial teeth, particularly the incisors, were more labially inclined than we would consider esthetically normal. The cutting edges, especially of the upper incisors, were more or less protruding, which seemed to be due to a retru-

sion of the apical zone, or that which we would denominate from an esthetic standpoint, a repression of the normal development of the middle features of the physiognomy.

If this condition, which is a normal Japanese type occurred with an Anglo-Saxon, *as it occasionally does*, it would be diagnosed as decidedly abnormal, notwithstanding the perfect occlusion of the teeth; and in all probability if not an inherited type, it would be caused by some abnormal condition of the maxillary sinuses resulting in a lack of development of the intermaxillary processes, and demanding a protruding movement of the apical zone of the incisors and a retruding movement of the incisal zone, to correct the facial outlines. (See Fig. 5.)

If I may be permitted for the nonce to digress from my main theme, I should like to say that it is with some trepidation that I express my views upon the influences and results of heredity, for fear of being dubbed one of the "wiseacres," as in the following quotation from the pen of Dr. Angle: * ". . . . it is common to have such conditions explained by the very wiseacres as being the result of hereditary, the child inheriting the large teeth of one parent and the small jaws of the other. It is time that such nonsense passed out of the minds of intelligent dentists. Nature does not make such mistakes in so important a matter as the dental apparatus." I should like to ask if this teaching also now belongs to the repertoire of the "new school" and if we shall be regaled by a denial of the well-established Darwinian laws of heredity, including the actual though perhaps not frequent transmission to progeny of a single organ or type in a composite organism, to that of associate organs, forms and contours, that are inharmonious because each partake of the special characteristics and type-markings of those of their physically dissimilar progenitors?

How often do we see beautiful children from homely parents because of the transmission to the child of those special features of the two physiognomies that are harmonious in union? On the other hand, how often do we see plain and homely children from parents whose physiognomies individually are symmetrical and attractive, because of the transmission to the child of a combination of the features of both, which being dissimilar in size are inharmonious in union? And as the osseous framework is the principal medium that characterizes the various forms, even the large teeth of one parent and the small jaws of the other—though never claimed as more than of rare occurrence—will probably continue to be something above "nonsense" to "intelligent dentists," especially as it can be so easily verified.

**International Dental Journal*, October, 1903, page 740.



Mesio-Distal Malocclusion.

In cases where the upper or the lower teeth occlude mesially or distally to normal in relation to opposing teeth, it may be stated as an incontrovertible truth that the occlusal relation (*as in all occlusions*) *does not indicate in itself either the character of the irregularity or the movement demanded for its correction*; as it may be either a protrusion or retrusion of the teeth of one jaw alone; a condition quite as common as an equally reciprocal malposition of both; though it is doubtless a fact (as will be explained) in the majority of cases where the buccal teeth of one jaw are in decided mesial or distal relation to the normal dento-facial lines, the opposing teeth have frequently been forced more or less by occlusion in the opposite direction.

Therefore it should be well understood that a reciprocal movement of the upper and lower teeth with the intermaxillary, or any reciprocally acting force, that is not controlled to act according to the real demands of the case, but only for the purpose of producing "a normal occlusion" of the molars and other teeth (which has been so loudly voiced of late as one of the great discoveries of modern orthodontia, universally applicable for nearly, if not quite all, mesio-distal malrelations) is in reality only indicated in cases of a protrusion of the teeth of one jaw and a retrusion of the teeth of the other; the real character of which can only be determined—like all other irregularities of the teeth which affect the facial outlines—by a careful and intelligent study and comparison of the relations of the teeth to the physiognomy.

Disto-Mesial Malocclusion. Case from Practice.

Figure 6 will serve to illustrate the common facial type in one class of irregularities characterized by a disto-mesial malocclusion, and the result of correction without extraction, with the unrestricted action of the intermaxillary force. The buccal teeth originally were in perfect mal-interdigitation—the upper fully the width of a bicuspid in front of a normal occlusion with the lower—and though they have all the characteristics of the ordinary upper protrusions when viewed alone, yet it will be seen that the upper lip in its esthetic relations is but slightly protruded, and that the depression below the lower lip is decidedly retruded in relation to a chin that is sufficiently prominent. The forward curve of the lower lip is due to the fact that it rests against the incisal edges of the upper teeth; all of which plainly indicates that the lower teeth are decidedly retruded, while the upper teeth are but slightly protruded. To further illustrate the type of physiognomy in this class of irregularities, Fig. 7 is made from the models of five different cases at the beginning of the operation—one of which is shown in Fig. 6. In

some of these cases the slight upper protrusion was due principally to the labial inclination of the labial teeth, which when righted did much toward correcting the overlying facial outlines. In nearly all cases of this character, where a considerable protruding movement of the lower teeth is demanded, the crowns of the incisors will usually be forced forward to a decided labial inclination, unless proper provision is made in the apparatus for also moving the roots and surrounding alveolar process. This, moreover, is particularly necessary to correct the deepened facial areas which lie over the roots. The statement that the



Fig. 6.

processes of growth will bring the roots of these teeth forward to any appreciable extent has never been realized in the writer's practice. In fact when these roots were left with this hope, a far greater struggle arose to retain the crowns.

Another class which is quite as common as the above with the same character of occlusion, is where the upper teeth in their dento-facial relations are far more protruded than the lower are retruded; and again when the upper are protruded and the lower in normal dento-facial pose.

It will at once be seen that an attempt to bring about a "normal

occlusion" of these cases with an unrestricted action of the intermaxillary force would result in an abnormal protrusion of the lower teeth in their dento-facial relations, and with only a slight correction of the upper protrusion.

If one will for a moment stop to consider the possibilities of dental and facial relations, he will realize the inadequacy of occlusal relations as a diagnostic sign of real conditions, and as a guide to correction.

Take, for instance, the above common occlusion, where the lower buccal teeth are the width of a bicuspid in distal relation to the upper—one will find that there exists every gradation of facial inharmony that may be produced with this occlusion, from one extreme to the other. The extremes are (1) cases when the upper teeth are in perfect dento-facial harmony—the malposition being due entirely to a retrusion of the lower; and (2) cases where the lower teeth are in perfect dento-facial harmony—the malposition being due entirely to a protrusion of the upper.



Fig. 7.

These constitute about five distinct types of dento-facial inharmonies (see Fig. 8), which, if all treated according to the mathematical rule of the so-called "new school," with the intermaxillary force, would, in the main portion of these cases, result in a kind of correction that would hardly satisfy those who possess the slightest conception of the higher planes of perfection which marks the sure trend of this department of dentistry.

As elsewhere explained (and mentioned in papers even as early as 1893), the set requiring the lesser movement should be so united and the force applied in phalanx to proportionately retard their movement according to facial—not solely occlusal—demands. And for the set requiring the greater movement (if it is not advisable to extract), the appliances should be so constructed to accelerate or increase the relative amount of movement by first applying the force to a few teeth at a time, etc.

ORTHODONTIA

In a very large proportion of these cases, where the upper protrusion is more pronounced than the lower retrusion, a better way is to extract the upper second bicuspids; then move all the lower teeth and the upper molars forward, to their normal dento-facial relations, with a retention of their original occlusion; and the upper labial teeth and first bicuspids back to close the second bicuspid spaces, which would result in a perfect interdigitating occlusion of the cusps and the correction of facial outlines; thus avoiding the complications and dangers of an extensive distal movement of the buccal teeth.

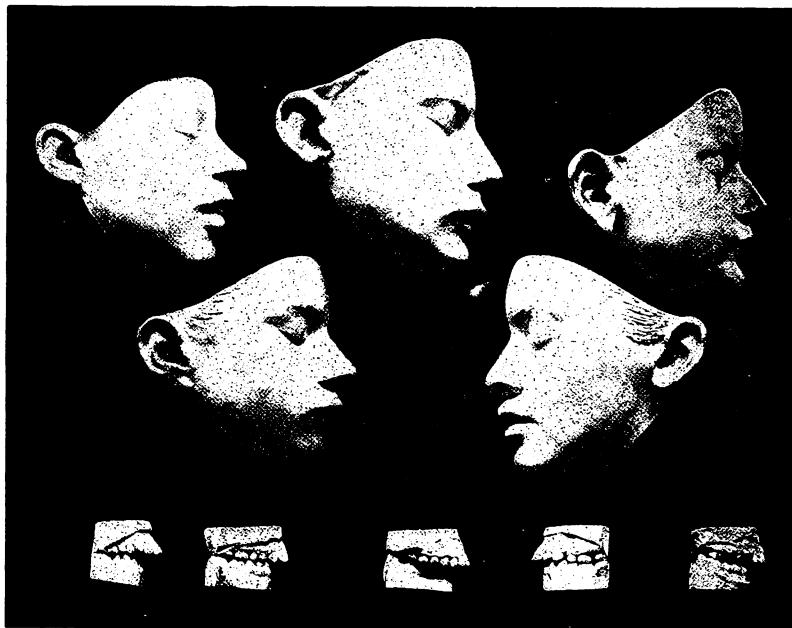


Fig. 8.

Influences of Mastication Stress.

In mesio-distal malocclusions—a condition that obtains in a large proportion of the various classes of dento-facial irregularities—the extent of the malocclusion is commonly the width of a cusp or a bicuspid, because the forces of mastication insist upon this position whenever from local or constitutional causes the highest points of the cusps of one set are placed or have passed ever so slightly beyond the crests of the normally occluding cusps of the other set, from which point they are forced down the inclined planes of the occlusal facets until the cusps perfectly or fairly interdigitate.

Outside of constitutional causes, the principal local cause which tends to produce this condition is the premature loss of deciduous teeth followed by a mesial movement of adjoining buccal teeth, which usually results in that most frequent irregularity that is principally characterized by a maleruption of the cuspids, far more common with the upper teeth than with the lower. Occasionally the mesial movement of the buccal teeth is sufficient to jump a cusp. If this condition is bilateral and the malalignment is corrected *without extraction*, or *without a complete return of the buccal teeth to the positions they otherwise would have occupied*, a proportionate protrusion of the teeth in front must of necessity result, providing that their originally intended positions were in esthetic dento-facial relations.



Fig. 9.

It is the rule of the human economy that the teeth naturally erupt in proper occlusal and dento-facial relations, but as they do not always do so, because of causes which it frequently is not possible to determine, let us for a moment stop and consider the influence of the forces of mastication upon occluding teeth in completing and characterizing their final malpositions.

At six years of age the first permanent molars crowd their way into the dental arches between the rami or tuberosities on the one side, and the bases of the deciduous teeth upon the other. If an inherited protrusion or retrusion of the upper or lower teeth has stamped itself upon the deciduous teeth, the permanent molars and succedaneous teeth will, of course, assume the same abnormal relations. Fig. 9 is made from the dental models of a lower retrusion, and slight upper protrusion, at six years of age. The figure also shows models from the same patient at eleven years of age. The profile model of this case is at the extreme right of Fig. 7.

If the malrelation is slight or not sufficient to jump a cusp, the occlusal relations will often normally adjust themselves by a reciprocal

movement, though it is doubtful if they do so, much before the loss of the deciduous molars and the eruption of the bicuspids, as the mesio-distal occluding facets of the molars are not sufficiently inclined to enable the masticating forces to overcome the stability of their naturally fortified positions at this time. In this reciprocal movement of molar teeth, or buccal teeth in phalanx, it should be remembered that with equal forces applied the mesial movement will be far greater than the distal, which in itself will exert its concomitant influence in characterizing the final dento-facial relations.

In those cases where the mesial malposition is sufficient to slightly jump the crests of the cusps, as in partial upper protrusions, for instance, the final mal-interdigititation will have been brought about by a considerable increase of the original protruded position of the upper and with only a very slight—if any—retrusion of the lowers. This is true also in all cases where the molar teeth have drifted forward from local causes until they start to jump the cusps, nor do the forces of mastication commence to exert much distal movement upon the opposing teeth until their occluding facets have passed well upon the inclined planes.

Therefore, in all otherwise normal cases, where the upper buccal teeth have drifted forward, through the premature loss of deciduous teeth, to a sufficient extent to jump a cusp, the mesial malposition is never at any time or age counterbalanced in more than a very slight degree by a distal malposition of opposing teeth.

From constitutional causes, as before stated, the upper or lower teeth may *erupt* in every mesio-distal malrelation, but always subject to the culminating interdigititating forces of mastication. These forces will, in most cases, bring about a normal occlusion. But if they erupt with the points of the cusps slightly outside of their normal boundaries, the final result may be fully the width of a cusp from a normal occlusion.

In this connection it would be well to remember, (1) that whatever the local caused movement, the tendency is greatest toward the mesial direction, and (2) whatever the final occlusion, the teeth of either jaw, or both, may be in decided malrelation to their normal dento-facial position.

False Treatment.

This brings us logically to the final consideration and summing up of the treatment proposed by the “new school of orthodontia” for all disto-mesial malocclusions. Practically stated, this consists in a reciprocal movement of the teeth of both jaws toward a common center of normal occlusion; consequently it must be considered applicable by them,



for all cases of excessive protrusions and retrusions of the upper or lower teeth whose occlusal relations are in malinterdigitation, or the width of a bicuspid in front or back of a normal occlusion.

The objection to this principle of treatment is: The set that is back of the normal occlusion may already be in normal dento-facial relation, or even slightly protruded.

If these conditions are characterized by an upper protrusion, for instance, with the lower in normal dento-facial relation, a reciprocal movement *must inevitably result in a protrusion of the lowers and only a partial correction of the upper protrusion.* In other words, "the final result would be a composite abnormality which, if correctly defined, must be a partial protrusion of the teeth of both jaws."

In connection with this feature of the question, there arises a very important consideration, viz., as before stated: with an unrestricted action of reciprocally acting disto-mesial buccal forces, *the protruding movement is liable to be twice as great as the retruding movement.* Therefore, with the intermaxillary force applied as has been commonly directed, to single molar anchorages, in these cases, the final dento-facial result is liable to be *not even one-half corrected.*

And yet how many young men of to-day, with natural artistic senses benumbed by the blare of "normal occlusion," are turning out cases in this condition as cured, because the teeth occlude normally; and who so pride themselves in the belief that they have fathomed the wonderful depths of "normal occlusion" in its relations to orthodontia—which less than three per cent of the dental profession understands—they crowd the journals with illustrations of their *dental* models to prove their successes. Dr. Cryer has said in a recent article.* "I have seen patients coming directly from orthodontists, have just such an arrangement of the teeth (as his Fig. 1), with 'normal occlusion' and *with prognathous appearance.*"

Again, if it is maintained, as has been shown, that all corrections of irregularities should be accomplished without extraction, this would mean in the above cases that real dento-facial correction must consist in a *distal movement of all the upper buccal teeth fully the width of a bicuspid or more*, followed by a retruding movement of the labial teeth the same distance.

If such an extensive distal movement of the crowns of the buccal teeth were practically possible after the full eruption of the second molars, which is not at all probable by any means, or if started early and accomplished as it may be with an heroic application of occipital and intermaxil-

**Dental Cosmos*, February, 1905.

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lary forces, though not without the strong probability of producing a decided distal inclination of the buccal teeth, and also the danger of impacting the unerupted third molars—as Dr. Cryer has pointed out—but even admitting it to be possible, I would still question the advisability of attempting such an extensive distal movement of molar teeth, or even one that is more than half the width of a cusp under the most *favorable* circumstances.

*“Moreover, I cannot see the advantage, from the standpoint of science, humanity, or common sense, of a considerable and very questionable distal movement of molar teeth that are in *natural* positions in the jaw, or in other words, that have not moved forward to unnatural positions from local causes, unless the operation contemplates the ultimate extraction of the third molars, which are often quite as important in the dental economy, especially when uncrowded in development, as the first or second bicuspids, particularly when the loss of the latter teeth in appearance and effect is hardly discernible.

“This would mean also that one would need to keep in touch with these cases—which is usually impossible—and be ready to extract the third molars at the very beginning of their eruption; else you may be sure that the influences of these teeth upon a crowded dental arch that is artificially posed, and therefore predisposed to return to the former position, and with its bases encroaching upon the room which the third molars require for eruption, will destroy all your efforts of correction even though opposed by the forces of a typically normal occlusion.”

*Case. *Dental Cosmos*, May, 1904.



SOCIETY PAPERS



Have We Any Further Use for Amalgam?

By RODRIGUES OTTELENGUI, M.D.S, New York.

(Read before the Central Dental Association of Northern New Jersey.)

When amalgam was first introduced the cry was "Have we any use for amalgam?" Now that porcelain has found a permanent place in our armamentarium we may justly consider the question used as a subject for our discussion to-night.

In connection with all other material we have advocates so ardent, that for their special favorite the claim of universal usefulness is made. The truth is that for each filling material there are some locations and conditions which make it most desirable, and, conversely, some places where it would be least useful. It is a significant index of the present temper of the profession that just now our current literature offers papers discussing "The conservative use of porcelain," "The comparative value of gold and porcelain?" "Where gold is preferable to porcelain," and other essays of like trend. Thus we see a stemming of the porcelain tide, which had threatened to flow so high as to obliterate valuable landmarks in conservative practice. I think therefore I need make no apology for introducing a discussion of why, when, and where to use amalgam.

Time was when our choice of a permanent filling rested between gold and amalgam. The selection then was not so difficult. Some cavities cannot be properly filled with gold; therefore amalgam became the only alternative. But some cavities which cannot be well filled with gold, can be successfully treated with porcelain. Thus we see that porcelain is not merely the alternative of gold, but should occasionally be used in preference to amalgam. If I would specify to make clearer my meaning

Choice of Materials.

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I would say that we have in the past filled with amalgam, teeth, the cavities in which could not be kept dry long enough for the proper retention of gold; or cavities so sensitive that the retention needed for amalgam was more easily secured than a preparation required for gold. Such cavities may often be successfully and painlessly prepared for and filled with porcelain. Between *three* filling materials therefore, the choice is much more complex. I shall not undertake an elucidation of the whole subject but shall confine myself chiefly to an enumeration of the places and conditions which render the proper utilization of amalgam the wisest procedure, regardless of the financial aspect. And let me say here that the true dentist who serves his patient rather than himself will always use the *best* filling material regardless of the profit that the operation may bring to him.

**Amalgam
in Crown Work.** I have laid down the postulate that there is for each material some place where it is the very best reliance. The first situation under this class in relation to amalgam has to do with the crowning of teeth. Wherever a broken down root is to be crowned with a shell crown, in these days an operation rightly restricted to molars, it is my view that the natural tooth should first be protected by as perfect an amalgam filling as can be made. There are several reasons for this, and it is especially obligatory when decay or fracture has destroyed a portion of the tooth below the margin of the gum. Then the replacing of the lost part with amalgam renders the fitting of the gold band more easily possible and painless. It also permits a band which does not extend too far below the gum, and assures a tighter adaptation through the restoration of the circumference of the tooth root to its full proportion. But even where the root is sound for some distance above the gum it is advisable to fill the cavity proper with amalgam first, and to build up as high as possible while leaving space for well re-inforced cusps. Treated in this manner there is less likelihood of subsequent decay under the crown; and the crown is better supported with a minimum of cement, since the crushing stress will be better supported by the metal than by a large mass of cement.

**Amalgam
in
Compound Cavities.** Approaching the realm of fillings proper, we find the first demand for amalgam in those situations where the ravages of caries requires that the filling shall be carried far beneath the gum. But here while the demand is for amalgam, success cannot be obtained without due observance of an exacting technique. Amalgam is chosen because it can be quickly and accurately packed into such places. It must be remembered, however, that no filling near the gum, nor beneath it, can be



counted reliable which is not absolutely smooth. It is in this demand for a high polish that we meet an obstacle with amalgam in this situation. It can be easily put into place, but it is also easily displaced as hardening is the result of a considerable lapse of time; and during this period the filling is exposed to the careless masticatory stress of the patient which may compress it so that it comes back with a serious overhang at the gingival margin. This is difficult to remove, as amalgam along the gum margin is more resistant to our polishing methods than gold. An accident of this nature is worse than a real fracture. The latter compels refilling, while the former may be, and too frequently is overlooked.

In rare instances such cavities may be filled without the matrix, but I think it safer and wiser always to use a matrix of some sort; wiser because aside from the safety assured we acquire increased skill in matrix manipulation by constant practice.

Formation of Matrices.

Occasionally I use a removable matrix, but usually I prefer one which tightly surrounds the tooth and which may be made in a moment. For a removable matrix I employ thin sheet steel. This is cut into a half circle and bent so that it binds against the sides of the tooth to be filled and against the adjacent tooth, being thus held firmly during the operation. The part which lies next to the gingiva should be curved so as to pass below the cavity margin, without biting the gum at the lingual and buccal angles. Further security and safety is assured if this part of the matrix is contoured so as to pass under the bulge usually present at the neck. Where the adjacent tooth is too far away to bind the matrix into position, it may sometimes be held tight against the gingival margin with matrix clamps, or by packing the interproximal space with spunk or by tying.

For a continuous tight matrix I use the band material familiar to orthodontists and solder the ends with soft solder. If for any reason there is difficulty in making such a band for the tooth to be filled, an equally well fitting band may be made by utilizing the similar tooth on the opposite side of the mouth. Thus a matrix band needed for the first right lower molar may be made around a first left lower molar. This sort of matrix may often reassure the operator against the danger of disturbance during the setting of the material as it can be left in position for twenty-four hours without discomfort. In such case provision should be made for the proper knuckling of the filling. To attain this the band should be trimmed very narrow at this side, so that it serves as a matrix along the gingival margin, but does not extend up quite to the point of contact. Here the amalgam may be built over the matrix edge and tight against the adjacent tooth.

At the next sitting the matrix is readily cut and removed sidewise. It will then be found that the filling along the gingival margin is well adapted without overhang, and may be polished with a narrow strip of sandpaper, passed in through the side, no attempt being made to open the contact. The margins are all polished and the filling made as bright as possible without opening the contact. This done a fine smooth-sided saw is carefully passed through the contact several times, removing the little shoulder which will have been made by the polishing strips and disks, but not cutting down the contact, the teeth yielding enough to allow the passage of the saw. Of course if the teeth could have been separated first it would be permissible to pass very fine strips through the contact point as a final finish, depending upon the return of the teeth to position for the restoration of contact. It is advisable, however, to trim the actual contact as little as possible, always, however, getting it smooth.

Matrix for Buccal Cavities. There is a use of the band matrix which I have not seen elsewhere recorded. This is in connection with those troublesome cavities in buccal surfaces, of lower molars more especially. It is often impossible to place a clamp in this situation, and in some mouths the napkin dams back the moisture for only a brief time. Where the divergence between the greatest diameter of the tooth and its neck, is not too great, a band matrix may be made, placed over the tooth and cavity, and then a flat burnisher used to force the upper edge of the band away from the cavity, this act at the same time forcing the lower edge of the band tight against the lower margin of the cavity. This forms a pocket into which amalgam may be quickly packed, and the band may then be burnished back tight against the filled cavity, forcing excess of mercury out and tightly compressing the filling. Where the cavity extends below the margin of the gum the matrix may be curved so as to extend down and engage the edge, thus greatly facilitating the filling. A matrix so used entirely eliminates the danger of a defective lower margin so commonly caused in the effort to smooth this edge with burnishers, starting a flow of blood, which, incorporated with the amalgam causes it to crumble.

Adjacent Compound Cavities. Where we have two large compound approximal cavities adjacent, the case is complicated, and it is my advice and practice never to fill both at a single sitting. A simple procedure is sometimes useful. Both cavities being prepared, they are filled as a single cavity with the hardest impression compound obtainable. This is thoroughly chilled, and then the compound is carved from the cavity to be filled, care being observed to disclose the margins without removing too much of the com-

pound. Thus is made a perfect cavity in which to pack the amalgam. The second filling, however, should be inserted not later than the following day as the compound softens under the warmth of the mouth. Another method is to fill one cavity carefully with gutta percha first, and then apply the band matrix which is left in place till the amalgam hardens when the second tooth may be filled in a similar fashion. Never insert the amalgam first and then fill the second cavity with gutta percha, the matrix being off.

I might stop here and say "here ends the use of amalgam." Certainly, according to my view, these large complex cavities are the only places where amalgam is our sole reliance, and even here our use of the material will decrease in proportion as we become skilled in making gold inlays.

**Restriction
in Use of
Amalgam.**

In my opinion in proportion as the patient is young the use of amalgam should be avoided. Beginning with the youngest teeth that we must fill, amalgam in temporary teeth should be restricted to occlusal cavities in the temporary molars, which have surrounding walls. Whenever the cavity involves the approximal surface gutta percha is preferable. Gutta percha not only serves the purpose of saving the teeth, but it also aids in the expansion of the jaws for the reception of the second set.

When we come to the permanent teeth, I like gold which I think should be inserted as soon as possible after the initiation of decay. If caries has progressed too far, or the teeth are too sensitive, or the little patient be too refractory, or too nervous for extensive operations, pink gutta percha should be used until conditions make gold possible. Amalgam is less a tooth saver in young than in adult mouths, and should be used as little as possible.

Aside from the large cavities referred to, amalgam may be used in mouths where we find that others have used amalgam before us and we can note that it is acting as a permanent filling without inviting recurrence of decay. If examination of a mouth where there are many amalgam fillings shows them all in more or less bad order, the dentist should carefully observe whether or not these fillings had ever been properly polished. If so, it is evidence that a painstaking man has done the work, and it is almost time wasted to make further use of the material in such an environment. Even in such cavities as I have outlined, it might be wiser to place crowns at once, especially in pulpless teeth, but if the dilapidated condition of the amalgam fillings, and the teeth containing them, is accompanied by evidence which shows that the fillings never were polished, that

gingival margins were left rough, that contact points were left open, the material should not be censured. The fault was with the dentists.

Thus the postulate is, avoid amalgam in young mouths, and in adults be somewhat guided by the work that has gone before.

**Does Amalgam
Inhibit
Erosion?**

I may here record an experiment made by me some years ago, which had an interesting result, though, of course, not a conclusive one. We must have more evidence along similar lines before believing that amalgam will inhibit erosion. But this is what I did. I had in my care two men, one about forty years old and one about sixty. Both suffered from erosion. The younger man likewise had some pyorrhea, which was only kept under subjection by constant care. In the younger man's mouth I found buccal erosion on all eight bicuspids. I filled the four on the left side with gold, and those on the right side with amalgam. About five years later the erosion around the gold fillings was so extensive that I removed the gold and inserted amalgam, the fillings of amalgam on the opposite side having remained with perfect margins, much to my surprise. Five years later, all eight amalgam fillings are in good order. It must be remembered, however, that this man has been under constant observation for the cleansing of these teeth during all this period, and that I always repolish those amalgam fillings, thus keeping them bright.

With the older man I used the amalgam and gold somewhat differently. On each side of the mouth I filled one upper and one lower bicuspid with gold, and one upper and one lower with amalgam. Thus I had the fillings in more absolutely similar environment. In this mouth, which has been in my care for some fifteen years, no skill of mine (except crowning) has ever entirely eliminated caries. Do what I might, in time there would be a recurrence of decay somewhere next to or near to the fillings. But here again the amalgam has outlasted the gold. Here again the mouth has been under constant observation and it is always my practice to repolish the amalgam fillings, thus keeping them as smooth as possible.

It is rare to see amalgam in fine condition after **Polishing.** long use, but I do believe we would see more of it if the amalgam at the outset were given the same high finish as is usually bestowed upon gold. So it may not be amiss to just touch upon this phase of the topic. I think amalgam should be scrupulously polished, at a second sitting of course, and to do this I think it obligatory to place the dam. Amalgam will take a very high polish if care be observed in the work. It is best to use fine polishing strips or disks from the first. The coarser make scratches the removal of which too



much reduces the size of the filling. The trimming down is quickly done even with fine disks. The filling reduced to the desired shape, which in occlusal surfaces should include restoration of cusps and what may be called masticatory contour, the surface should be made smooth with fine pumice and moose hide disks, and this should be followed by whiting, and a fine brush wheel. This will produce a surface like burnished silver. These fillings of course tarnish, and lose their beauty, but at each sitting of cleansing the luster is quickly restored with the polishing brush. I wish to lay stress on this point. A moderately stiff brush will polish an amalgam filling so as to astonish those who have not tried it.

**Removal
of
Amalgam Fillings.** I have spoken of where and how and why to insert amalgam. May I say just a word as to the removal of amalgam? It is probable that many follow my method, but I do not recall having seen it in print, and it has been of such service to me that I cannot refrain from mentioning it. In my earlier days nothing harassed me more than the removal of a large amalgam filling, especially in a sore tooth. Then I thought of a method, tried it and have never once had trouble since. To burr out or drill out an amalgam filling with constant syringing out of the debris is a trial to both patient and operator. I use a spear pointed drill, made sharp for the purpose, and I prefer a drill because it cuts rapidly and does not clog, as a burr does. I drill a hole into the filling at the median line; by moving the drill back and forth as it cuts, I make this a slit. This slit is continued until the filling is actually divided into halves. One easily tells by the sense of touch when the drill passes beyond the amalgam and reaches the dentine, when, of course, drilling in that particular direction is stopped. The filling thus cut in half, is easily removed in two pieces, by pressing each piece towards the center, thus dislodging it.

I have, I admit, rather restricted the use of amalgam, and it may be that I have overlooked some situations in which amalgam will prove the best reliance. If this is brought to my attention during the discussion I will cheerfully admit it.



SOCIETY DISCUSSIONS

Central Dental Association of Northern New Jersey.

April Meeting.

President Dunning called the meeting to order.

The Secretary called the roll and a quorum was found to be present.

On motion of Dr. Luckey, a telegram was sent to ex-President Stockton conveying the congratulations of the Association to Dr. Stockton upon his speedy recovery from his recent serious illness and also expressing the sympathy of the Association for him in the bereavement which had recently befallen his family.

The President then introduced R. Ottolengui, M.D.S., of New York City, who read the following paper:

Discussion of Dr. Ottolengui's Paper.

The paper by Dr. Ottolengui has surprised me

Dr. Joseph Head, very much by its extreme conservatism. I have always
Philadelphia. understood from what Dr. Ottolengui has said before

that he was much more opposed to amalgam than he appears to be to-night. And the point which he brought out regarding the completing of broken down roots was one of the very points which I had intended to bring out for the purpose of refuting him. Therefore, one of my chief weapons has been snatched from my hands.

I will say, however, that amalgam fillings are not difficult to polish in between the teeth; in fact I have come to the conclusion that any good filling near the gum line is no more difficult to polish than a tooth is down there. We have heard much of pyorrhea, and the necessity for keeping tartar off the teeth, and we have learned that it is absolutely essential that

every bit of tartar should be removed from the neck of the tooth and truly every one must know that to remove all the tartar from the neck of a tooth is a difficult operation requiring the finest skill and the finest steel in the instrument. So, therefore, it seems to me that when we have inserted our amalgam filling if by any possibility there is an overhanging edge at the gum line all we have to do is to take our right angle instrument, take a very fine fissure burr, start underneath the filling and calmly burr up until we entirely remove that edge; it seems to me a very simple operation; and after the overhanging edge of the metal has been removed we can with files and tape polish it. This method has the advantage of making it possible for us to polish fillings where there is an indentation, as sometimes occurs at the neck of the tooth, where the straight tape would not reach it. There being a slight curve in the root the filling might project and reach across that curve, but the metal in this curve can be readily removed by using the very simple finishing burr. In fact so convinced am I of the possibilities of polishing either the gold or amalgam fillings at the gum line, perfectly, that I make my amalgam fillings in the following manner, which is diametrically opposed to the way described by Dr. Ottolengui.

**Dr. Head's Method
of Filling
with Amalgam.**

For instance, I have an approximal cavity that faces a perfectly smooth, clean surface of the adjacent tooth. I take it for granted that if I put my amalgam against the enamel of the adjacent tooth it will be smooth; the amalgam will take such close adaptation that where the amalgam absolutely joins the enamel it will have a polished surface so that as far as that is concerned the mere polishing of that part of the amalgam that adjoins the smooth enamel does not concern me. As I said before, when this cavity is prepared I take the amalgam, I squeeze it down in its mushy state into the cavity, and fill up the space between the cavity and the next tooth absolutely solid from the gum line up; having done that I take the rest of the amalgam and squeeze it out dry, and then add the dry amalgam to the amalgam in the cavity until I have made the amalgam that is to form the filling in the future, exactly the consistency which I consider most feasible for setting. It is a method we have all used. It needs no extraordinary skill. But then, when that is done, I have the amalgam filling with an edge overhanging it and the thing to do next is to remove that edge. Before the amalgam sets I take a fine Donaldson brooch and I start in at the gum line underneath and saw backward and forward and up in the direction towards the opposite tooth, to preserve the contour of the filling, until I cut out that filling and make a v-shaped space between that filling and the adjacent tooth. I clean it out thoroughly. I then tell the patient



SOCIETY DISCUSSIONS

to be careful not to chew on that side of the mouth for two or three hours. I know perfectly well that filling is not entirely smooth, and the next day or whenever it is convenient I have the patient return; I then take my fissure burr and start in at the gum line and carefully cut up and make it roughly to shape from the gum line up to where it comes in contact with the adjacent tooth. Then I follow the same plan that Dr. Ottolengui mentioned, of taking a fine saw and working down, employing not a sawing motion, because that will cut off a portion of the metal, but prying in between the teeth with the saw so that it will take off all the sharp edges. I think that is what you mean?

Dr. Ottolengui. I prefer to saw from the bottom up.

Dr. Head. Yes, but you do it in such a way as not to take off any metal so that you have a perfect contact between that and the adjacent tooth. Sometimes by taking a very fine instrument you can work it in between the metal and the enamel and take off the edges, and when you have done that and have made it so that floss silk will go backward and forward without being cut or getting caught you have for all practical purposes a perfect filling because, although it is true that where that fissure burr goes up against the enamel there is a slight ledge, that ledge for practical purposes is just as good a shape for cleansing as though it came up at a more acute angle. After that is done, after you have carved your filling into shape and roughly taken off all the overhanging edges, you can put your strip in underneath and polish it as you would with any other way. That being done it seems to me that the question of polishing the amalgam filling is reduced to a matter of about ten minutes, when the filling is hard and makes it so that the patient is not subject to the annoyance or pain perhaps of having a matrix applied, nor of the length of time nor tediousness of such an operation. It makes it so that the amalgam filling, under ordinary circumstances, after the cavity is prepared can readily be inserted inside of ten minutes, even the large ones, and the finishing as I stated before can in my opinion be done inside of ten minutes on the following day.

**Dr. J. Ashley
Faught,
Philadelphia.**

I have listened with a great deal of pleasure to the very remarkable paper of Dr. Ottolengui and have been greatly gratified at the teaching which he has set forth. But this gratification has been somewhat co-mingled, since I learned the real title of the paper, with some disappointment. The title of the paper is "Have we any Further Use for Amalgam?" I was expecting we would hear the exploiting of some new application. The word "further" would seem to



ITEMS OF INTEREST

indicate that we would learn possibly of some use that had not as yet been set forth. I do not see that anything has been presented other than a review of some uses that have formerly been made of the material—nothing new, with perhaps one exception, and that exception I did not know that any man had had the temerity to do other than myself. I have therefore wished to cite the matter, as it were, adding testimony to that of Dr. Ottolengui, and that is where amalgam is used to counteract the effect of erosion. I also for some years have been testing it in that direction with exactly the same results as Dr. Ottolengui sets forth. The two statements can be placed side by side and you can enter into the consideration of how far that application of the use of alloy is a new and further use for it.

In regard to a use that I make of it there is one thing that has not been mentioned in the paper and that is for repairs. It is not new, it is old, but I find that amalgam is quite the material for repair work. As a rule I do not like to advocate much repair work in taking care of the mouth; if a filling has failed in its object it is time for us to consider the cause for the failure, and it is time for us to make some effort to improve upon former treatment, and if possible to establish a new treatment which shall give the promise of more definite results. Still it is true that at times we will have certain work fail, particularly on the approximal surface, and in many cases in that relationship I find that amalgam is quite the material for repairs; that when it is so placed it not only restores the perfection of the former filling but introduces an addition, which seems, in the result following, to make a far more practical filling than the original effort to fill with gold.

The question presented tonight is one which
Dr. H. W. Harlan, covers a great deal of ground which at first thought
New York City. one might not include in it.

What is the object of filling teeth? To save them. And with what material are you able to save teeth, and how many people are able to pay for porcelain fillings and gold fillings—I mean, of the total number that must have teeth filled? Those are some of the things that have to be considered. There are a great many people, wage earners, who receive comparatively small weekly or daily amounts for their services and still must have their teeth filled. Some of these people may have teeth which have very large cavities and they cannot afford to pay for either porcelain or gold. Then the next thing to consider is what can they afford to pay for? We have been using alloys for nearly seventy-five years, certainly, and I expect there are more teeth, numerically, filled with amalgam today, two or three to one, than are filled with gold



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and porcelain combined, and still a great many of those people have their teeth fail.

I am very much in favor of idealistic dentistry in many respects. But I must confess there are a great many people who must have their teeth filled with amalgam in preference to gold or porcelain. There are a great many loose teeth that have cavities to be filled, and which would not endure the hammering necessary for inserting large gold fillings and where you would be compelled to make gold inlays or porcelain inlays to keep those teeth at all comfortable unless amalgam was used, and I really think that there are such a large number of people of that kind, and there are such a large number of people who need to have their teeth filled that we must answer that there is still a further use for amalgam for the benefit of the people themselves.

So far as I am concerned, individually, I will say that the man who can properly shape and pack gold in teeth, and select the kind of teeth in which to pack the gold and shape it, and finish it, does probably the highest style of artistic work that is done by the dentist. I do not think that the porcelain inlay is a higher grade of artistic work, from the standpoint of pure mechanics, leaving out of consideration the question of color and blending, than the work of one who makes a gold filling. But there are many teeth in which the situation of cavities precludes the possibility of making these artistic fillings and the environments are such that the teeth will not endure with such, and we have to take all that into consideration.

Dr. Faught said that he uses amalgam for certain kinds of repair work. I remember reading a great many years ago a little note that Dr. Kingsley sent to one of the dental journals advocating the repair of gold fillings with amalgam; I have seen a great many fillings since the appearance of the article which have been patched with amalgam and patched very successfully. One of the reasons why more are not successful is because the cavity that extended beyond the gold filling was not properly sterilized, and it is a very great mistake in the sterilization of cavities in teeth which extend beyond the gold or amalgam fillings to try to sterilize them with substances that are not absolutely soluble in water; therefore if all these cavities are sterilized with bichloride or with formalin or some substance of that nature, there is a better opportunity to make a respectable repair than there is when they are sterilized with creosote or carbolic acid or any of the substances that are not certainly soluble in water.

Dr. Faught. Is not carbolic acid soluble in water?

Dr. Harlan. Not entirely.

Dr. Faught. Is it not to the extent of five per cent?



ITEMS OF INTEREST

Dr. Harlan.

Yes.

Dr. Faught.

Well, that is pretty good.

Yes, but I think there are spores that will live in a five per cent solution. I am inclined to make this

Dr. Harlan. dogmatic statement; to sterilize a cavity by the side of a filling, in which you are about to make a repair you must sterilize with something that is absolutely freely soluble in water and that will destroy not only the micro-organism itself, but the spore, and if you do that you have a fairly good opportunity to preserve that tooth from any further invasion.

Dr. Ottolengui. Will you tell us how long that sort of sterilization will require?

Not less than fifteen or twenty minutes and you

Dr. Harlan. must put a rubber dam on to keep the tooth dry and then introduce your formaldehyde solution, and your bichloride solution ought not to be weaker than one to five hundred and it should be slightly acidulated in order to accomplish the sterilization; it does not necessarily need to be boiling but it ought to be made with a hot solution instead of a cold one.

There is another thing in connection with the use of amalgam which was not spoken of by the essayist and has not been referred to by any of the speakers and that is this; there are many frail teeth, teeth containing living pulps that can be filled with amalgam by lining the interior of the cavity with a cement suitable for the purpose and introducing the amalgam into it, and forcing it into every part and it will be retained in the teeth very much better than many of the mechanical amalgam fillings that are inserted in teeth.

I do not know who first spoke of that, but I remember that Dr. Tileston, of Louisville, mentioned it many years ago in a paper which he read before the Kentucky State Association or some other western association; but it does not matter who introduced it, it is a very good thing and I read a paper a short time ago in one of the journals in which a man said that he invariably lined the cavities of teeth with cement before inserting amalgam, and found it an extremely good thing. It is essentially an alloy or amalgam inlay, and we depend first on the shape of the inlay, and secondly on the retentiveness of the cement, that goes between the walls of the cavity and the inner surface of the inlay, to hold it in position; and if it is a good thing there it certainly must be good in amalgam.

Many years ago, before they thought very much about inserting gold inlays or porcelain inlays I became acquainted with an Italian dentist in Naples who was in the habit of vulcanizing white and gray pieces of



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vulcanizable rubber and fitting that into cavities and cementing them in and I got the idea of replacing an occasional gold filling which had tumbled out or broken down. This happened in 1878, so you can tell about how far back it was, and after that period the present modern development, and the method of inserting porcelain and gold inlays, has been brought to more or less perfection. I am quite aware that inlays were put into teeth long before any man in this room was born, but then it was not generally known, so we might say that it is very modern.

I did not come quite in time to hear the entire

Dr. S. C. G. Watkins, paper, and therefore I am not prepared to say much.
Montclair.

I am a believer in amalgam; I believe there is a place for it and always will be. Amalgam is one of the things we must rely upon; as Dr. Harlan says, there are many who cannot afford gold, and then amalgam must be used. Again, there are thousands and thousands of teeth that can be saved with amalgam, which cannot be saved with anything else. I do not believe that porcelain will ever take the place of amalgam, and there are many cases where it is practically impossible to save teeth as well with porcelain as with amalgam, and there are many cases where it would be impossible to save them with gold as well as they can be saved with amalgam. If amalgam is put in carefully it can be put in, comparatively speaking, perfect in many cases where the filling would be absolutely imperfect if gold were used. The chief object is to make a tight filling, a filling that will not leak and without loose places around it; and that can be done with amalgam in many cases where it cannot be done with gold or anything else.

Dr. Benj. Luckey, We all know that amalgam has a place in dentistry; it always will have. I have had the pleasure of seeing an amalgam filling in the mouth of an

Paterson. old gentleman who is connected with the Erie Railroad Company, and has been for many years, who told me that it had been in place for forty-eight years, and it was looking very well.

I think that if the old-fashioned amalgam, not the amalgam made today, but the good old-fashioned tin and silver amalgam, will last for forty-eight years in one mouth, it has a fair chance to last for many years in almost any mouth if it is as carefully used as it was in that case.

I do not agree with Dr. Harlan as to the ability of men to use amalgam so perfectly where they are unable to use gold, or rather to put it in another way, that we require so much less skill to use amalgam perfectly than gold, because I believe that to use amalgam perfectly and to get the results expected by the patient and operator requires almost, and



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in many cases quite as much skill as to put in a gold filling. The difficulty is that so many men have the idea that such skill is not necessary with amalgam fillings that they do not expend the time and care and skill to get a good result as they do with a gold filling. If they would follow out the lines laid down by Dr. Ottolengui of careful manipulation and thorough finishing and polishing they would get the results quite as well as with gold.

I think the essayist is right in his observations as to erosion; I have noticed the same clinical facts in several cases, but I think those same results can be attained by the use of a little amalgam plug in the gold filling. With the first bicuspids, and cuspids, and centrals, and laterals, in both the upper and lower jaw, under the Ottolengui plan, to save those teeth it would be necessary to use alloy, because gold would not accomplish the purpose. Now gold can be used in such places with care and precision and perfect manipulation, with the addition (as we talked about at our last meeting) of a small alloy plug in the most obscure corner; and you will get the same results as with the alloy alone, and yet have the benefit of a bright gold filling.

While there is no question as to the usefulness of amalgam and its good offices in our practice there is danger of a tendency to sloppiness, because of the ease with which amalgam can be used, and to the young men of the profession it is wise to say just a word of caution—not to impose upon a good friend or overwork him.

Amalgam is one of the best friends we have, one of the best tooth savers we have, and it would delight Dr. Flagg's heart to hear me say that; but it carries with it a great danger, because of its ease of use, of being used carelessly and sloppily, and Dr. Ottolengui has very forcibly brought out the necessity for care in its manipulation, and care in the polishing and finishing of the edges—a word of warning that every one of us can afford to take to himself.

I am a believer, as was old Dr. Flagg, in the use of amalgam.

Dr. Chas. A. Meeker, Newark. The dental depots have sold tons of it and are selling tons of it to-day, and will still be selling tons of it when we are dead and the daisies are growing over our graves. Amalgam has saved more teeth for humanity in this country and in other countries than any other material in use or that has ever been used, and I believe that we will continue to use amalgam until chemistry has reached such perfection that a material is found of the color of teeth which can be used in the same way as amalgam now is.



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**Dr. W. P. Richards,
Orange.**

Dr. Ottolengui alluded to his method of removing amalgam fillings from the teeth by dividing. My method has been, if the tooth were a lame tooth, I mean if the periosteum were sore, to make a little well in large amalgam fillings, fill it with mercury almost up to the surface, and then to put a little oxyphosphate cover over that. Allow it to remain for a day and have the patient come back and a burr will remove that filling readily.

**Dr. Chas. Ash,
Brooklyn.**

There is a use for amalgam which has not been touched upon tonight, and it is in a place where no other material can be used, and that is in saving old roots of teeth which are sound, and where the crown of the tooth is entirely gone. I think Dr. Faught at one time read a paper on amalgam crowns, whether before this society or not I do not know; but where the whole crown of the teeth is gone to such an extent that the roots are separated, and there are two or three roots separately in the gum; by properly preparing these roots and binding them together with wire you can build them up with amalgam, and by careful shaping you can make a complete crown for that tooth with amalgam. It is not necessary to finish the operation at one sitting; you can make a flat top to it and contour your amalgam, making the contour surface in a mold adding this later.

As for the lining of cavities with cement, in using amalgam I would say that I do that almost universally now, and find that I can conserve the tooth structure. I do not destroy so much of it in order to get retaining points. I simply line the cavity with cement putting the amalgam in at once.

Dr. R. Ottolengui. I did not touch on the financial side of this question, but Dr. Harlan did, and I will refer to that.

Dr. Harlan speaks of sensitive teeth which you cannot strike with a mallet that should be filled with amalgam; there are cases of that kind. It only shows, gentlemen, that we all look at these cases from our individual viewpoint. Dr. Harlan is more particularly engaged in the treatment of loose teeth, and he sees such kind of teeth perhaps so often that he thinks they are of more frequent occurrence than they really are. We look at these things from our own viewpoint and of course I have that same predisposition, and I, too, may be looking at these things from my own personal experience, and in the light of what I see myself. With me amalgam is no economy. I would no more think of using amalgam to lessen a patient's bill than a physician would think of using some cheap substitute for morphine instead of the real drug.



In a certain patient's mouth, where there was no money consideration I filled one tooth with amalgam and another with porcelain, and I was more proud of the amalgam filling than of the porcelain. Dr. Harlan said there are people who cannot afford to have porcelain fillings, but I charged that lady more for the amalgam filling than for the porcelain. And why not? If I went into the details of that operation I would show you that it took me longer, and required more skill to accomplish the filling of that third molar with amalgam than it did to insert the porcelain inlay in the second molar.

I have never heard the question of amalgam discussed but these two points come up. Some people cannot afford gold, therefore, you must fill their teeth with amalgam. And anybody with average skill can put in amalgam fillings. Then why, in the name of heaven, gentlemen, do not we use more of it? We hear that it takes a great deal of skill to put in a good gold filling yet I see perfectly elegant gold fillings come to me from the hands of other men all the time; but when I see a perfectly elegant amalgam filling come into my office I ask for the name of the man who did it, and his address, and I write him a letter of congratulation, because there are so few of them.

One of the reasons why amalgam does not fill so large a place in my practice is because I find it takes just as long to put in a good amalgam filling, regardless of the size, as any other, and costs just as much; and I have sometimes put in porcelain fillings for people because I thought they could not afford to have gold in those places.

The places where I use amalgam are those where you cannot put in a proper gold filling, and some places where you cannot possibly put in a perfect gold filling, and where you cannot put in a perfect porcelain filling you can put in a perfect amalgam filling, but as I said before I cannot do it in ten minutes.

Dr. Head wants to know why I said amalgam is not safe in children's teeth, or in other words why it will not save young teeth as well as old teeth. In the first place I mentioned in the paper that in the mouths of adults you have the opportunity of seeing what has gone before, and what is safe to do; but you cannot do that in the mouth of a young child; you may know very little about the child or to what extent there is a tendency to caries in the mouth, or what the conditions may be. If, however, you put in amalgam, the usual method of filling a tooth for a child is to cut out the little place that has decayed and put a little amalgam in. You would not fill it with gold in that way; if you were going to use gold you would cut out everything and do it properly.

It is not nice to mention names but you all remember a paper read at



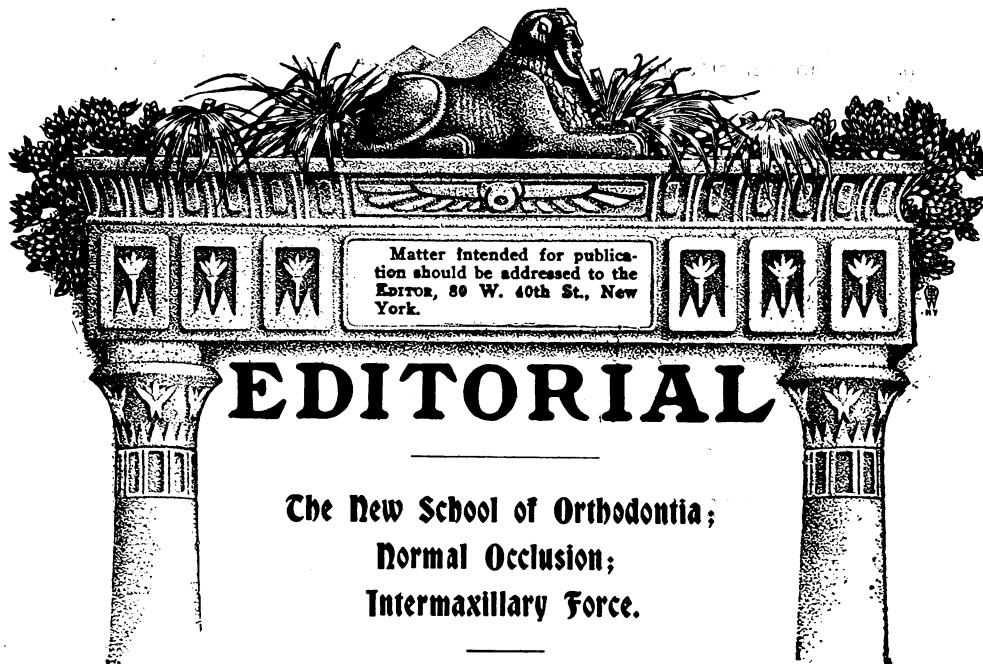
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Asbury Park when I spoke of filling teeth with gold instead of amalgam. One of the most dogmatic men in the dental profession and one of the finest operators, up to that time had been filling children's teeth with amalgam, and he did not admit my premises at all, but antagonized them as strongly as he could; but he has told me later that since then he has been examining carefully the children in whose mouths he put amalgam and has come to the conclusion that it is a mistake to put amalgam in children's teeth. And one reason why I take the stand I do is because I have filled such teeth with gold for twenty-five years, and it has succeeded and where I have departed from that practice I have been sorry for it.

Youth is the period of decay and amalgam will not stop caries as gold will.

My dear friend Dr. Meeker says that amalgam has saved a great many more teeth than gold. I deny it. It has saved a great many more teeth for a little while, but then the patients must come back and have the filling put in again.





The New School of Orthodontia; Normal Occlusion; Intermaxillary Force.

In this issue we publish an important paper from the pen of Dr. Calvin Case. It is important because it antagonizes the so-called "new school of orthodontia." We have heretofore editorially discussed the question whether there is, or is not, a new school, deciding affirmatively. Dr. Case now criticises this new school, but apparently his notion of what constitutes the new school differs widely from what we mean by the same term. He seems to think solely of definite men; we ignore men entirely and think only of *motif*.

There is much in this paper that must be answered by the new school; much that undoubtedly will be answered; and from such discussion nothing but good results can come. Here, we will consider mainly the problem of intermaxillary force, touching first lightly upon normal occlusion in relation to physiognomy.

Normal Occlusion in Relation to Physiognomy.

The new school declares that during adolescence if the occlusion be, or be made normal, the physiognomy will be, or will become normal. But Dr. Case seems to think that the new school recognizes but one normal occlusion and but one normal physi-



ognomy, and that the workers in this school, meeting anything which departs from their notions of beauty lines would at once proceed to make alterations. He describes the Japanese type of face, which yet has normal occlusion, and says that if the same type of face should occur in an American, it would be diagnosed as abnormal. If the orthodontist could change this, he would be justified, unless the patient could be persuaded to move to Japan where his physiognomy would *appear* to be normal. Dr. Case seems to have imbibed the idea that the modern orthodontist believes that a set of teeth articulated in a definite way would be accompanied by certain fixed facial contours, regardless of race or heritage. But to the impartial logical mind, the postulate that normal occlusion accompanies a normal physiognomy, in no manner antagonizes the fact that both must be considered with due appreciation of the race to which the subject belongs. What should be done in a case of double protrusion in a delicately moulded Anglo-Saxon, in no way indicates that the same interference is called for, where a similar protrusion is found in a burly negro.

In his discussion of intermaxillary force, Dr. **Intermaxillary Force.** Case presents an exhaustive argument, which, though interesting, seems based upon a false premise. That there may be no mistaking Dr. Case's position, the following is clipped verbatim:

Speaking of the "new school" he says: "All of their protrusions seem to be confined to one jaw alone." . . . "Furthermore they do not seem to recognize a protrusion, or retrusion in which the teeth of the opposing jaw are ever in normal relations to facial outlines; but in their estimation, where the teeth of one jaw are protruded, the teeth of the other are retruded, and *vice versa*; else why is it that they advise the invariable practice of an equally reciprocal movement of the upper and lower teeth in all cases of mesio-distal mal-occlusion of the buccal teeth."

Let this statement be carefully studied, and then let us ask Dr. Case for his authority for such a broad statement, imputing as it does such gross ignorance to those whom he criticises. He has given us lengthy quotations, but none which substantiates this misconception of the use of intermaxillary force, as utilized by the new school men:



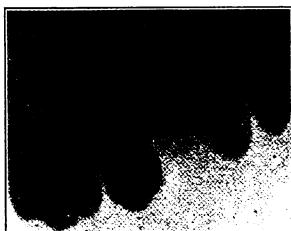
The pith of the argument is that "they advise the invariable practice of equally reciprocal movement of the upper and lower teeth in all cases of mesio-distal mal-occlusion of the buccal teeth." An equally reciprocal movement of the upper and lower teeth! Let us study this.

Is there such a thing as exactly equal reciprocal movement mesiodistally? Either set of teeth is more readily moved forward, against the thin labial plates, than backward against the denser ends of the arches containing unerupted teeth. In order to achieve exactly reciprocal movement between two objects bound together by an elastic, it is absolutely requisite that the two objects shall be equally stationary, and therefore equally easily moved. There probably never was a case of exactly equal reciprocal movement between two jaws produced by simple intermaxillary force, unrestrained, and therefore it would be folly to advocate such an undertaking. By a wild flight of the mind one may imagine two jaws moved with equal ease mesially, or with equal ease distally. But it is not conceivable that one of these jaws could be moved, let us say a quarter of an inch distally with the same force that would be required to move it the same distance mesially. (By "jaws" in this argument is meant the teeth and their processes). It therefore follows theoretically that in all mesio-distal reciprocal movement of two sets of teeth simultaneously, the set moved mesially travels a greater distance than the set moved distally, dating such measurement from that period in the work when all teeth are in approximal contact.

But the teeth are not always in approximal contact, and thus it will frequently occur that the use of intermaxillary force will for a time act only upon a portion of the arch, real reciprocal action not occurring until all spaces have been closed. Thus where an upper protrusion is attended by spacing between the anterior teeth, the lower being retruded, intermaxillary force may act more or less reciprocally equal at first, the retrusion of the upper anterior teeth being effected with about the same expenditure of force as may serve to move the lower set forward to some degree. As soon as the upper arch is retruded so that all the teeth are in approximal contact, the upper set will offer a greater resistance to distal movement, than the lower will offer to mesial movement, and thence forward the lower set will move (theoretically) more than the upper.

It must also be remembered that intermaxillary force is often used

in conjunction with other forces which of course greatly modify the result. Thus in a narrow protruded upper arch, where intermaxillary force is dragging the incisive region backward, while lateral force is being used against the bicuspids, the result may be and often is a shortening of the upper arch, and a reduction of the protruded portion without any real distal movement of the arch as a whole. Meanwhile the same force may have moved the lower set forward sufficiently to correct the mesio-distal mal-occlusion. Viewing the models of such a case before and after, the casual observer may imagine that the two sets of teeth had been moved reciprocally, whereas the truth is that the upper molars may not have been moved a jot.



These illustrations show bicuspids imprisoned by mesial movement of molars. One radiograph is reversed, having been printed with film reversed.

A Case from Practice.

A case from practice well illustrates this sort of mistake. The diagnosis made by the first attendant was that the lower jaw and chin protruded, while the upper jaw was retruded and too small.

The lower sixth year molars occluded mesial to normal. The patient was about eight years of age, and the upper incisors were in such lingual eruption that they could not be made to even meet the teeth of the lower jaw. Intermaxillary force was applied for about a year, by which time the upper incisors occluded slightly over their antagonists, while the occlusal relations of the molars were about normal. The attendant claimed to have reciprocally moved both jaws, the upper set of teeth mesially and the lower set distally. The moaeis apparently authenticated the claim. At this time the child was given into other hands.

Examination by the second attendant disclosed several important facts. Two upper bicuspids had erupted and were nearly in approximal



contact with the molars. Judged from the time of eruption they should have been the first bicuspids; from their position in the arch they would be taken for second bicuspids. Radiographs, herewith reproduced, clearly indicate what had taken place. The lower jaw had absolutely resisted the intermaxillary force, and had thus served solely as an anchorage. All the movement had occurred above; the molars and the incisors had been moved mesially. Thus when the first bicuspids erupted, unaffected by the force which had been utilized, the result was an apparently false position, and an imprisonment of the second bicuspids. It might appear that the first attendant had damaged the child, but oddly enough, such is not the case. A careful study of the physiognomy shows that the fault lay almost wholly in the upper jaw, which was sadly undeveloped. Thus the correct occlusion of the molars may be retained, and the second bicuspids may be released by the mesial movement of the first bicuspids.

The above case is introduced merely to emphasize the assertion that equally reciprocal movement of both jaws is theoretically improbable, and practically so rare that no school of orthodontists, having any experience with intermaxillary force, may with justice be accused of advocating such equal reciprocal movement in all cases of mesio-distal mal-occlusion.

The Patent Bill.

In our department of Dental Laws and Licenses, in this issue, appears an article which all should read. It will be found to be intensely interesting. It is some years since the agitation for an amendment to the patent laws first began. Many doubtless have thought the movement dead, but there has been no session of Congress without an effort for the passage of this much needed legislation. During the last Congress success almost crowned our efforts. The House Committee on patents unanimously recommended the bill in spite of the opposition of the Commissioner of Patents. The next step was to obtain similar action by the Senate Committee. Unexpected opposition was met through the Patent Attorneys' Association, a body of lawyers who will work against any



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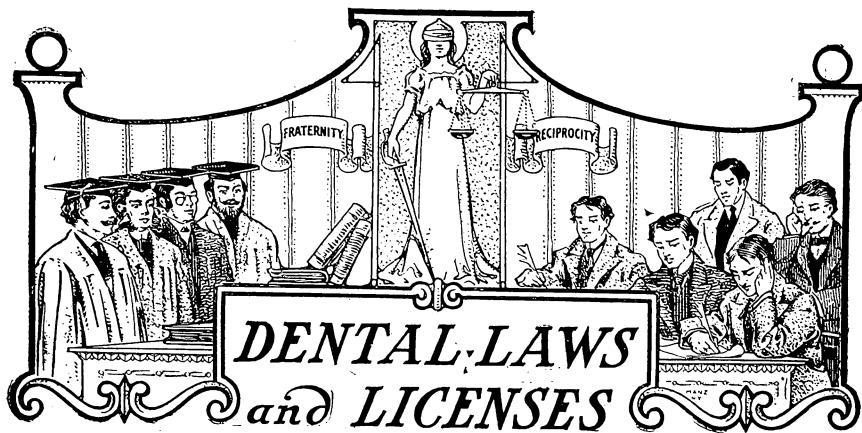
legislation which aims to reduce the number of patents granted, as that perforce lessens their prospective fees.

In this fight for the profession Dr. Emory A. Bryant, of Washington, has been indefatigable, and he has not only done a yeoman's work but his work has made an impression. While it is true that the bill has not as yet been passed, it is likewise true that the patent office has been so awakened and reorganized, that no objectionable patents in dentistry are apt to be granted for a long time. It would be unwise to give more details at present.

But it may be said, as a warning to the dentists of America, that though the Vulcanite fight is a thing of the past, and though the Crown Company be out of business, even during the past winter patents have been sought, which if granted would have been a menace to the welfare of dentists and patients.

Dr. Bryant's able address, therefore, should be carefully read and studied; the profession should rouse up from their lethargy; because if a united demand could be made next winter, it is practically certain that the bill could be passed.





Patent Bill.

Address Before the Committee on Patents by DR. EMORY A. BRYANT,
Washington, D. C.

In making this last appeal for justice for the profession which I represent through the provisions of H. R. 6771, and its duplicate S. 4256, I shall confine my answer to the suppositions of the opposing forces, consisting of the Hon. Commissioner of Patents and the Washington Patent Attorneys' Association only, to a statement of facts in detail. What I have to say may not be the means of passing at this Session of Congress the bills I advocate, but it may serve to furnish my hearers material for future thought and reflection.

What are the points of opposition?

That the patent system is attacked and that the law of section 4886, as it was passed in 1793, should not be changed. This, gentlemen, contains the gist of the opposition by whomsoever made.

Let us go into the facts of the case and see where they lead us and if these contentions are sustained.

Origin of the Patent Laws. 1. It is a known fact "that the common law does not provide a patent system, it is created by statute only." (Merwin's Patent Law.)

2. It is likewise well known and a fact that, like our common law, the patent laws of this and all civilized countries using such laws, were founded upon the Patent Laws or System of England. In fact, there are many decisions in patent cases in the United States to-day in which, like our common law, the decisions of the English courts are cited to make plain the point of law involved.



In defining the law of patents it was necessary to go to basic principles, and on this point I quote from Wallace and Williamson (Law of Patents of England, 1900, page 40), who say:

At the outset it is necessary to turn again to the Statute of Monopolies. By section 6 of that Act the privilege of granting monopolies is preserved to the Crown only in respect of matters which can be brought under the following description: "Any maner of new manufacture within this realm . . . which others at the time of making such letters patent and grants shall not use." Moreover the Act further provides that such manufactures shall only be made the subject of grants by letters patent when "*not contrary to the law; nor mischievous to the State by raising the prices of commodities at home; or hurt of trade; or generally inconvenient.*"

That act is a part of the patent system and laws of England to-day, although it was passed in the reign of James I., and I invite your attention to the fact that this act was in effect at the time of the passage of our first patent law in 1790, and it was because of this fact that the opposition to the law of 1790 arose, which opposition brought the amendment of 1793 into existence. Again, the misuse and abuse of the conditions under this act of 1793, by those appointed to execute the same, brought about another change in the patent system of this country by the act of 1836, approved July 4th of that year. By this act the whole system and method of procedure was revised and the first Commissioner of Patents provided for. For twenty years previous to the act of 1836 the Patent Office has been conducted to suit the individual ideas of one Dr. Thornton, who, not satisfied with the mere execution of his duties also appeared in many instances as part owner of the patents he himself granted.

Up to the act of 1836 there had been but 11,800 patents granted. The wording of what is now styled section 4886 was changed and enlarged upon from its original form, and the act of 1836 was kept substantially intact until August 29, 1842, when Congress again amended, practically, the whole patent system, enlarging its scope and adding thereto what is known as the Design Patent Law. At this point I desire to call your attention to the fact that this Design Patent Law was changed in a few unimportant particulars only, from 1842 to the present time, when the present Commissioner of Patents proposed a radical change therein and Congress enacted the new Design Law of May 9, 1902, to which I shall refer more particularly hereafter. But to revert to the patent system in its entirety. After a prolonged contest lasting some seven years, the conference bill of March 2, 1861, was passed. This was in turn amended in 1870 and 1874, at which date the present laws were passed and codified. There have been, it is true, other amendments, but they were of a minor character only and in nowise affected the basic laws of the system. The whole of section 4886, as it stands today, was adopted by the act of 1870 and is not, therefore, of such ancient lineage as we have been led to believe. It is true the words "art, machine, manufacture or composition of matter," have not been changed, but their range of subjects has been enlarged and restricted both by congressional enactments and the decisions of the courts.



The truth is that the whole patent system is more a system of court decisions than of legislation and the courts have been more restrictive than have the laws of Congress, as has been recognized for many years. This statement is also true of the patent laws of England and of other countries.

It is conceded by all authorities that a correct definition of the words "art and manufacture is an utter impossibility," and "the courts have contented themselves with illustrative definition only" as to what is or is not patentable under the law where these words are used.

"Chapter 5, page 60. 'Foreign Patent Laws,' by A. P. GREELEY, ex-Assistant Commissioner of Patents, member of Commission to revise Patent and Trade-Mark Laws of the United States, appointed under the Act of Congress, approved June 4, 1898. Member American Bar Association."

"On the subject matter for which patents may be granted."

SEC. 51.—INVENTIONS CONTRARY TO LAW OR INJURIOUS TO PUBLIC HEALTH OR MORALS NOT PATENTABLE.

The earliest general law on the subject of patents for inventions—The Statute of Monopolies, adopted in England in 1623,—excludes from protection inventions which "are contrary to the law, or mischievous to the State by raising the prices of commodities at home, or hurt of trade or generally inconvenient." This is the law of Great Britain today.

The laws of other countries differ in wording from this law, but are all in substantial agreement with it in excluding from protection, either expressly or by necessary implication, inventions the use of which is necessarily unlawful or injurious to public health or morals.

Inventions Which May Not be Patented. It is the law of England and obtains in this country as well, that no patent shall be granted that is not of benefit to the public and a little reflection will show that any patent, although granted under a statute enacted for the public good, would, if it prove to be "of hurt to trade, or generally inconvenient" to the public welfare, be construed by the courts to be void on its face. With the facts placed properly before them, there can be no doubt that a patent restricting the members of the medical or dental profession in their efforts to cure disease, relieve pain and suffering, and supply the defects of the human body by the use of their hands and knowledge of the healing art, would be declared void and as against the health and welfare of the public. Laws and their restrictions are enacted for the public good, by the people through their representatives in the Congress, and it is not reasonable to suppose for one moment that such representatives would, merely for commercial advantages, submit or acquiesce in laws which were opposed to their own personal well-being. If personal interest or the spirit of commerce commends itself to the executive officers of the Patent Office in such manner as to blind them to interests of the public generally whose business they transact, I submit to the honorable gentlemen, if it be not your duty to apply, as did the Congress of 1836, such restrictions by law or statute as will protect the interests of the people generally as well as those of



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the two greatest healing professions, medicine and dentistry? Such restrictions and such protection is afforded in H. R. 6,771 and S. 4,256 respectively.

Opposition of the Dental Profession. My contention is that inventions of the description to which I have referred are not patentable under the patent laws as provided in section 4,886 of

the Revised Statutes, and, as a profession, we have consistently fought this class of patents in the courts for the last thirty-two years, or longer, and the courts have as consistently upheld our contentions in every case brought to the Court of Appeals or the Supreme Court of the United States. Is it not remarkable that a profession composed of 30,000 men should array itself as one man against the patent system as administered in this class of patents, *only*? Is it so monstrous that we should oppose that which hampers the common instincts of humanity and restricts our professional acts for the relief of suffering or that we should gladly extend our aid financially and otherwise to that class of patented articles which can be manufactured and sold? Does it not seem on its very face that there must be something radically wrong? As medicine has given to the world the great agencies which limit and cure contagious disease and lighten the ills of humanity without reward, except that of the acclamation of his fellow-workers and professional brethren, as surgical operations aid the weak and the maimed, so, too, has dentistry in its short life contributed its share to the great cause by the invention and application of the use of ether and nitrous oxide gas that causes the human body to become insensible to pain while undergoing the various surgical operations appertaining to the practice of the professions.

Are the rights of commercialism superior to those of humanity?

It has been said by the gentlemen opposing these bills that numerous bills have been introduced, at various times, to take certain classes of inventions from the protection of the patent system. This may be, but I defy those gentlemen, or any one else, to point to a single clause in any one of those bills wherein the humanity or general welfare of the public is concerned. I defy them to mention one bill of this category that would not be as great a menace to the public as it would have been a benefit to those who advocated it or for whose interest it was proposed. Can such a statement be truthfully made of this bill? Is the public to be injured by the provisions of this bill? No. Is it to be benefited by it? Yes, most emphatically, yes, from any point of view in which you may regard it.

Is it a detriment to the dental or medical profession? The fact that it is endorsed by the entire dental profession, as well as by all of the medical profession I have been able to reach, is a sufficient answer to that question.

Will it injure the dental manufacturing interests—the only interests involved in dental appliances from the manufacturers' standpoint? All the dental manufacturing companies and all the dental dealers in the United States have endorsed the bills. Is it not reasonable to suppose that they know and guard their own interests?



The Opposition to the Bills.

Then, if these things be true, what interests may be affected, and in what manner and to what degree are they affected by these bills? Upon this point we can judge only from the nature of the interests opposing them. The Hon. Commissioner of Patents, primarily, who, less than three years ago, advocated and succeeded in having enacted into law, a measure *restricting what should comprise the subject of a design patent, thus exempting what had been for a period of more than sixty years, a class of useful inventions* and the subject-matter of patents. Was the *judgment* of the Hon. Commissioner of Patents the moving force that accomplished this act of 1902? No. In the case of *Rowe v. Blodgett & Clapp Co.* (U. S. Circuit Court of Appeals; Second Circuit), decided November 11, 1901, it was said by the court:

This is the case that caused the design law to be changed by Congress. Designs that were deemed patentable before decision of this court, are now not proper subject of design patents.

1. Designs—Horseshoe—calk—mechanical utility—Invalid.

Design patent No. 26,587, granted February 2, 1897, to Allen H. Rowe for a horseshoe, calk, *Held*, Invalid because the shape of the device was designed merely to enhance its mechanical utility and not for the purpose of display or ornament.

2. Useful—appearance—works of art and decoration.

Design patents refer to appearance, not functional utility, and their object is to encourage works of art and decoration which appeal to the eye, to the esthetic emotions, to the beautiful. The term "useful" in relation to designs means adaptation to producing pleasant emotions.

3. Attractive appearance—Design not a trade mark.

Where there is nothing attractive about the appearance of a design and its shape does not appeal in any way to the eye or serve to commend the article to purchasers, except to indicate that it is the product of the patentee, *Held*, That it is not patentable. Designs can not be considered trade marks.

This case was on appeal from the Circuit Court of the United States for the District of Connecticut. This decision took out of the patent system all that class of patents heretofore granted under the following heads:

"or any new, useful, and original shape of configuration of any article of manufacture." . . . and also the words: "has invented and produced any new and *original* design for a manufacture," etc., etc.

This decision took thousands of patents out of the subject-matter of patents, which condition of affairs was predicted in the decision in the case of *New York Belt Co. v. New Jersey Car Spring Co.* (137 U. S., 445), said decision being rendered by the Supreme Court of the United States in 1891, and notwithstanding the fact that the court declared in unmeasured terms that this class of inventions was of "doubtful patentability," the Patent Office continued to grant patents for such inventions until the decision in the case of *Rowe v. Blodgett & Clapp Co.* brought them up with a round turn in 1901, ten years later.



I have been informed by members of the Patent Bar Association that "the Commissioner got that bill through before we could stop him, or it would not have been passed, notwithstanding the court's decision," and they are still complaining of its present form because it has withdrawn a large part of their business. I have also been informed that the members of said association have stated that they have now made arrangements by which no bill affecting the patent laws shall be allowed to go through Congress until they have had "a chance" at the three departments, the House, the Senate, and the Executive, to defeat it.

The court takes occasion in its statement of the case in *Rowe v. Blodgett & Clapp Co.*, to criticise the Patent Office in the following language:

"The practice of the Patent Office in issuing design patents seems not to have been uniform. Prior to 1871 it was 'not only liberal but lax,' until in a carefully considered opinion Commissioner Leggett (*Ex parte Parkinson*, C. D., 1871, 251), conformed it to a construction of the law which subsequently found approval in the cases above cited."

A little further on in said decision the court says:

"It would seem from the patent in suit that this test is no longer applied and that the practice of the office has again become 'not only liberal, but lax.'"

The Patent Office and the Dental Profession. In its dealings with the dental profession we have reason to know that the practice has been not alone liberal and lax but laxative and has now arrived at the purgative point, and, gentlemen, the evacuation being now full, free and frequent, the body of the dental profession has become correspondingly weak and depleted. Gentlemen, we have reached the end of human endurance. We ask you to relieve us from the drastic treatment to which we have been subjected by the Patent Office to enable us to regain our full vigor, to bud, blossom and be fruitful, conformably to the ardent and oft-expressed wish of our honored president.

As was the case of the design patent law, and the prognostication of the court relative thereto, so it has been in the matter of "process patents."

Contention of Patent Attorney Association.

The representative of the patent attorneys' association who was present at the last hearing before your honorable committee stated that the courts had reversed their position taken in the *Risdon Iron Works v. Medart*, and other cases, namely, that "Processes of manufacture which involve chemical or similar elemental action, are patentable (158 U. S., 68, decided April 22, 1895). Now let us see whether this is a fact or a misstatement. Let us see what the position taken really was.

In the decision of the United States Supreme Court of May 9, 1898, in the case of *Boyden Power Brake Co. v. Westinghouse et al.* and *Westinghouse et al. v. Boyden Power Brake Co. et al.* (and this is the latest decision by the Supreme Court on this subject), it is said in the 5th clause of said decision:

Process—Patentability—Chemical Action.



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Risdon Locomotive Works v. Medart and other cases assume, although they do not *expressly decide*, that a process to be patentable must involve a chemical or other similar action, and it may be still regarded as an open question whether the patentability of processes extend beyond this class of inventions.

I see no veering around, no change of front in this decision. What could be plainer than the exact language of the court: "It is an open question whether the patentability of processes extends beyond this class of inventions." In other words, to make the open question a closed one it is necessary that a case involving the points in controversy go to the Supreme Court on its merits. But I am informed that this is exactly what the patent attorneys' association objects to and that that association and the manufacturers' association are painfully vigilant, that no such case goes to the Court of Appeals or the Supreme Court, the *Rowe v. Blodgett & Clapp Co.* case having given them a case of "chills," and that every case having the least probability of reaching the court above is compromised in the lower courts by forces that are simply irresistible. No such test case will ever be heard if anything on top of the earth can prevent it. The Patent Office will continue to issue "process patents" until stopped by the courts or Congress, notwithstanding the two decisions quoted which hold that it is a doubtful right, and, as shown in regard to design patents, nothing short of a club of large dimensions will make the Patent Office and the patent attorneys loosen their grip on the business which this class of patents brings to both. I am told, and the statement is supported by evidence, that "the end justifies the means."

**Senator Platt's
Letter.**

I shall now take up the letter of Senator O. H. Platt, in relation to bill 6,771, in regard to which letter the Chairman of your Committee and others said: "That sentence is sufficient in this case." This case referring to bill 6,771. The sentence to which reference is had is: "I am very anxious not to change our patent system, by exempting any useful inventions from its operation, thinking that if we begin to say that certain inventions shall not be patented, it is difficult to know where we will stop." I invite your attention to the words "any useful inventions," and I should like to ask what kind of useful inventions this bill will exclude? What inventions not wanted by any one or by any class, which have anything of interest in them? Congress has not been backward in "adding to the classes of inventions," and the courts have not refrained from "extracting from those Congress has added from time to time." Congress has just "added to," in considerable sized lumps, the Trade Mark laws, which are of very ancient origin, having been a part of the patent laws even before the design patent laws were incorporated into the patent system in 1842. The Trade Mark bill was nurtured by the patent attorneys' association because of the business it will bring them, and, I may remark here, that it was opposed by the Commissioner of Patents to the very last minute as urgently as he has ever opposed this bill.

Let us now turn our attention to the so-called Mann bill, which this committee unanimously reported to the House and urged its enactment into law with such success that it was passed by that body on December



14 last. That bill changed section 4,886, or in other words, changed "the law since it was first enacted in 1793," and carried with it all the objections of the Hon. Commissioner of Patents, the patent attorneys' association, and "that sentence in the letter of Senator O. H. Platt," to which your honorable committee has called attention. The so-called Mann bill (H. R. 13,679, 3d Sess.) was introduced and endorsed, as is well known, by the Drug Association and pertains to the drug business and affects those interested in drugs only. Is this "class legislation?" It looks mightily like it to me. It has been asserted by the patent attorneys' association that bill 6,771 is class legislation. In what regard is it so? I should be glad to be enlightened. A bill that is for the benefit of the public generally first, for the medical and dental professions second, and of no manner of injury or hurt to the manufacturing interests (as shown by the endorsements thereof) can scarcely be denominated as "class legislation." I should be pleased if some gentleman of the patent attorneys' association would point out wherein the class legislation lies. If it can be successfully shown that this bill is class legislation, I will cheerfully withdraw it. But were this assertion true, gentlemen, the difference in that regard between this bill and the Trade Mark bill would be the difference between benefits and advantages to be bestowed upon the patent attorneys, and benefits to be bestowed upon the physicians and dentists. Why should one class be discriminated against and another class allowed to prevail? Does it not seem that this bill becomes class legislation only as it affects the interests of those opposing it?

For two sessions of Congress I have consistently and I may say persistently advocated the passage of this bill, because I am firmly convinced that the cause is a righteous and legitimate one.

Last, but by no means least, I shall take up the decisions of the courts upon Inter-State uses of the "devices" we wish to prohibit.

In Webster v. Virginia (103 U. S., 344), Patterson v. Kentucky (97 U. S., 501), it is said:

"Rights secured to inventors by patents must be enjoyed in SUBORDINATION to the POLICE POWERS of the State over all property within its limits."

And again in Mitchell v. Tilghman (19 Wall., 287):

"An invention which constantly exposes the operator to the loss of his life, or to great bodily harm, can not be regarded as useful within the meaning of the patent law."

Now I submit that if it is not, within the meaning of the patent law, a useful invention which exposes ONE PERSON only to loss of life or bodily harm, how in the name of reason, justice and humanity can it be within the meaning of the patent law to grant patents upon processes and methods for the cure of disease, which exposes the great mass of the general public to "bodily harm" or "loss of life" by putting it in the power of one man or a set of men to say who shall use said process or method, and when, and under what conditions? Under such a distinction the patentee is given the privilege of dictating who may—be he good, bad or indifferent, so that he pays for said privilege—use the method or process in the different States and Territories of the Union where the



laws (police laws governing medicine and dentistry) will not allow the patentee himself to practice or even demonstrate or teach the methods or processes of his patent?

Again, the value of a method or process is determined by its adoption by the profession to which it belongs, the proof furnished by trials of sufficient length and by the results thereof. The State laws prevent him from going from State to State and demonstrating his methods or processes unless it be under the auspices and at the request of the medical and dental associations and upon the CONDITION THAT SUCH PROCESSES AND METHODS ARE FOR THE FREE AND PUBLIC USE OF THE MEMBERS OF THE MEDICAL AND DENTAL PROFESSIONS, or through PUBLISHING THE SAME IN THE MEDICAL AND DENTAL JOURNALS; and if he has the methods patented and will not give the use of his patent to the professions upon professional terms, they will not invite him or allow him to present them, and if he has not patented them but wishes to test their utility before his patent is allowed, the law will not sustain his patent.

In *Shaw v. Cooper* (7 Peters, 292), it is said:

"Whatever the INTENTION of the INVENTOR, if he suffers his invention to go into public use through ANY MEANS WHATSOEVER without an immediate assertion of his rights, he is not entitled to a patent; nor will a patent obtained under such circumstance protect his right.

It is plain to any mind that, in view of the condition, customs, precedents, etc., of the two healing professions, the above decision of the court, and the litigation of the past forty-one years, on these subjects, the granting of a patent is a great detriment, and not an aid, to progress in medicine or dentistry and can not be useful under the meaning of the patent law, and that it is a restraining hand and a bar to all, (save the one inventor), who are working along the same lines in expectation of no commercial reward but solely for the benefit of humanity and the progress of their profession.

The Goodyear Case. The decision in the case of *Smith v. Goodyear Dental Vulcanite Co.* (93 U. S., 492), established a precedent for these blackmailing schemes although that case was won upon a mere technicality and one that could not stand for one moment in the light of the decisions of the present day. I quote from the majority ruling of the court on the above mentioned case, as follows:

. . . We proceed to examine the several defenses set up. Among these the one perhaps most earnestly urged is the averment that the device described in the specification was not a patentable invention, but that it was a mere substitution of vulcanite for other materials, which had previously been employed as a base for artificial teeth, a change of one material for another, in the formation of a product. If this is in truth all that the thing described and patented was, if the device was merely the employment of hard rubber for the same use in substantially the same manner and with the same effect that other substances had been used for the manufacture of the same articles, it may be conceded that it constituted no invention. So much is decided in *Hotchkiss v. Greenwood*, II



How. 248, but such is not our understanding of the device claimed and described.

This it will be readily perceived is a decision on a technicality; on an understanding of the *state of the art* by the learned judges on the evidence submitted, at a period when the art of dentistry was exceedingly limited, the first dental college having been founded in 1836 and the second in 1856.

The Cummings Caveat was filed in 1852; patent applied for in 1855. It was rejected three times, practically abandoned from 1855 to 1861, again applied for, and finally granted on June 7, 1864. Between 1855 and 1859 the process of making vulcanite plates or sets of teeth, had come into general use in the dental profession, the Goodyear Rubber Company reporting that over 3,000 dentists were using the rubber for this purpose. From 1864 to 1873, the so-called inventor and holder of the patent did nothing practically to assert any supposed right he may have had, but in 1872 he made arrangements with three men to buy his patent if he could get it extended by a re-issue. This was done in 1873, over eight years after it had come into general use in the profession, and then commenced the long series of litigation extending to 1879, when the head of the concern, one Bacon, was shot and killed by a dentist in San Francisco, and the others, not caring to risk their lives in the face of the tragic ending of the senior member of the firm, ceased all attempts at carrying on the nefarious scheme and the dentists were left in peace to follow their profession uninterrupted by court proceedings, until 1884, when the International Tooth Crown Co., of New York, was formed to carry on the warfare, being incited thereto by the first successes that attended the last named organization.

That the members of the court in the case of the Smith v. Goodyear Vulcanite Co. (3 U. S., 501), were not in accord and saw the future results of the decision in that case, is demonstrated by the following quotation from the opinion of Mr. Justice Bradley, concurred in by Justices Miller and Field:

"I dissent from the judgment of the court in this case, on the ground that the patentee having duly made his application for a patent in 1855 and the same having been three times rejected, must be considered as having abandoned the same, inasmuch as no further effort was made to obtain a patent until eight years afterward, without any pretense that the patentee was engaged in perfecting his invention which he claims as his, had come into general public use. The application for a patent in 1864 was a new and independent application, and should be treated as such. As the public had enjoyed the use of the invention for more than two years prior to this application, the patent should be declared invalid. Great injustice will in my judgment be done to the public to allow a patent obtained under such circumstances to stand. The public had a right to suppose that no further application would be made. The levy of a tribute now on all the dentists of the country who have brought the plate into public notice and use seems to me a species of injustice. The delay of the patentee, in fact, is made to operate to his benefit, instead of his prejudice, his patent being made to run eight years longer than it would have done had it been granted when first applied for, so that



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the public is still further injured by sustaining the patent as finally granted. It is too common a case, that associate companies, in order to maintain some valuable monopoly, look about to see what abandoned invention or rejected application, or ineffective patent, can be picked up, revamped and carried through the patent office and by the aid of ingenious experts and skilful counsel, succeed in getting the desired protection. I think that the court ought to be strict in maintaining the rights of the public in such cases, and the present case seems to me to be one we ought to hold the patent invalid as against these rights."

Later Court Decisions. Henceforth the courts looked more closely into the practices referred to in the above decision as is observable in the case of *Market St. Railway v. Rowley* (155 U. S., 621), and in the International Tooth Crown Co. Patent cases and it is said in the *Market St. Railway v. Rowley* case, *supra*, that—

"A mere carrying forward of the original idea, a change only in form, proportions or degree, doing the same thing in the same way, by substantially the same means with BETTER RESULTS, is *not* such an invention as will sustain a patent."

In *McClurg v. Kingsland* (1 How., 202), it is said:

"The power of Congress to legislate on the subject of patents is PLENARY by the terms of the CONSTITUTION, and as there are no restraints on its exercise, there can be no limitations of their right to modify them at their pleasure, so that they do not take away the rights of property of existing patents."

In *International Tooth Crown Co. v. Bennett* (C. C. E. D. New York, Nov. 14, 1896) (72 Fed. Rep., 169, 170), it is said:

Validity of Patents—Prior use—Artificial Teeth.

The Low patent No. 238,940, for a method of permanent by fixing artificial teeth to the mouth by bands around the natural teeth, held invalid on proof of prior knowledge and use.

In the case of *D. J. Wheeler*, 18th line from top of page 170, above case, says:

The method is wholly mechanical and is said now, in view of *Locomotive Works v. Medert* (*Risdon Iron Works v. Medert*) (158 U. S., 68), decided since, not to be patentable; and defenses of prior knowledge and use by Drs. Day and Beardsley, not before the court then, are relied upon now. When the method and not the operating parts is what is invented, that of course is what is to be patented. Here the natural teeth belong to the wearer, and are to be operated upon. They are not made by the inventor to operate, and can not be brought within the patent act.

Decision affirmed November 6, 1896, C. C. of Appeals, 2d Circuit. Lacombe Dist., J. V. Townsend, Dist. Judge (77 Fed. Rep., 313).

The only litigation that has since ensued is that between the International Tooth Crown Co. and the dentists. The first case, and the only case to go to the Supreme Court, is that of *International Tooth Crown Co. v. Gaylord* (140 U. S., 55), in which the court held invalid the Richmond Crown, and said further:

"Something more is required to support a patent than a slight advance.



over what preceded it, or mere superiority of workmanship or finish. . . . It is no invention, within the meaning of the law to perform with increased speed a series of surgical operations in dentistry, old in themselves and in the order in which they have been performed."

It transpires that Richmond was himself in Gaylord's office and taught him to do this work, before the formation of the blackmailing schemes of the International Tooth Crown Company, and taught him how to work the improvement. After the formation of the company Richmond pretended he was at loggerheads with the company and they sued him on his own patents. International Tooth Crown Co. v. Richmond.

This was followed by many suits throughout the country among which I particularly call your attention to that of the International Tooth Crown Co. v. Carmichael, December, 1890, U. S. Circuit Court, Eastern District of Wisconsin, as it will show the methods used by that company given in detail. This suit was a cross bill and therefore shows no other matter of interest.

By this time our Dental Protective Association had been organized and things took a turn against the company and the tide never changed in their favor except in one case, that of I. T. C. Co. v. James Orr Kyle, which was won by collusion before J. Townsend, in July, 1899, and was thereafter reversed on that account on January 20, 1902.

In February, 1896, in the case of I. T. C. Co. v. Bennett, Wheeler, Dist. J., C. C. E. Div., N. Y. (72 Fed. Rep., 169), it is said:

The Low patent 238,940, for a method of permanently fixing artificial teeth to the mouth, by bands round the natural teeth, held, invalid on proof of prior knowledge and use.

This case was carried to the Court of Appeals, 2d Dist. and the decision of the lower court sustained, as follows:

"The Low patent, No. 238,940, for a device permanently inserting artificial teeth, without the use of a plate, and without using the gum as a support, is invalid as to both the first and second claims because of prior knowledge of use. (72 Fed. Rep., 169.) Affirmed."

This did not have the effect of stopping the company's schemes as will be shown. In 1899 the International Tooth Crown Co. v. James Orr Kyle, was tried before Judge Townsend of New York, who reversed the former decision of the court (I. T. C. Co. v. Bennett) declaring the Low patent invalid. The defendant, Kyle, was a brother-in-law of the President of the I. T. C. Co., Dr. L. T. Sheffield. I shall now quote from our Protective Association (President Dr. J. N. Crouse) in regard to it:

"From the start we suspected collusion, for we knew that the Crown Company had bedeviled the testimony and witnesses which the Protective Association put forward in the previous suit, and that Kyle had not stood all if any of the expense of his defense. In November, 1900, upon our motion and petition, Judge Lacombe directed Sheffield and Kyle to attend and submit to an examination before a Master in Chancery as to our allegations of the collusive and fraudulent character of the suit in question. The examination of these two individuals began November 8th, and lasted until the 14th, and disclosed the fact that the entire expense of both sides of the litigation, the Crown Company and Sheffield on one



side, as plaintiffs, and Kyle on the other as defendant, was borne directly or indirectly by the Crown Company and Sheffield. Upon cross-examination Kyle admitted that he never even went to the alleged lawyer's office, and that the only contribution he made to his defense, directly or indirectly, was "car fare and drinks for his attorney.

"Having thus proven that the Kyle case was won by fraud, the Protective Association presented this evidence to Judge Townsend. Briefs were filed by the Protective Association and the Crown Company and the matter was argued before the court on both sides. Jan. 20th, 1902, Judge Townsend set aside his former decision on the ground of collusion. Conditions now are about the same as they were five years ago, when the Low Bridge patent was declared invalid, and the Crown Company have no more, if as much, ground for a hope of success in their welfare upon the dentists of this country than they had at that time."

The Crown Company had not yet abandoned hope as is shown by the following in the March report of our Protective Association:

"CROWN COMPANY RUNS AGAIN.—Among the many suits brought by the International Tooth Crown Company against the members of the Dental Protective Association some months ago were several in New Jersey. One of these being against Dr. J. S. Vinson of Newark, was docketed for trial this month, and we supposed the Crown Company expected to prosecute the case, as it was the only one in that State in which they had taken testimony. The attorneys for the Protective Association prepared the defense, but we learned last week, greatly to our surprise, that the Crown Company had paid the costs of the case and had it dismissed, which is proof positive that they were afraid to have it come to trial. We now come to the final ending of the efforts of this company in the cases of *In. T. C. Co. v. Carter, Freeman and Hanks Dental Association*.

"Here they attempted to use one of the Code laws of the State of New York, to make the defendant in a case give his deposition before trial under the State practice, N. Y. Code Civil Proceedings No. 870 et seq. On motion of defendant to vacate order, it was denied. This was carried to Circuit Court of Appeals, 2d Circuit, and decided June 1, 1904, No. 83. *Hanks Dental Association v. I. T. C. Co.*

"In error to the Circuit Court of the U. S. Southern Dist. of N. Y. Per Currian, on the 16th day of May, 1904. The Supreme Court of the United States rendered a decision in which the following question certified by us was answered in the negative:

"Was the order of the Circuit Court directing the President of the Hanks Dental Association, the defendant in that court, to appear before a master or commission appointed pursuant to the provisions of Sec. 870 et seq. of the Code of Civil Procedure of the State of New York valid and authorized under the act of March 9, 1892."

As the only evidence tending to establish infringement was found in the deposition thus taken without authority of law, it follows that the judgment must be reversed, with costs, and a new trial directed.

I can safely assume that there will never be "a new trial," for, as I said the other day, the company is practically dead and buried as is the case with the President and its inventor.



There have been but two attempts made in the history of dentistry to accomplish this kind of blackmailing scheme, the first was the Goodyear Dental Vulcanite Company on the patent for a rubber plate, and the dentists individually fought this scheme until at last the head of the concern went to California to try his scheme there, and as one of the dentists there blew the top of his head off that ended the litigation.

The International Tooth Crown Company was formed about 1884, and we have fought them ever since to a standstill. This litigation covers a period of 21 years, and now, like their predecessor, they are in the cold, cold ground.

Now we have come to Congress, which is the only power to whom we can appeal for redress, and ask it to take the government of the United States, who is a party to this nefarious blackmailing scheme, out of the business; that in the future the professions of medicine and dentistry may not be prevented from using all their science, skill and ingenuity for the benefit of humanity without being continually threatened by suits for infringement of patents which never have been and never can be, beneficial to the public, the professions, the manufacturers, or anyone else on top of or beneath the earth.

States That Interchange.

Arkansas reports no interchange as yet, but Oklahoma reports interchange with Arkansas.

District of Columbia interchanges with New Jersey.

Florida interchanges with States whose laws are equal to Florida's.

Indiana interchanges with New Jersey.

Michigan interchanges with New Jersey.

New Jersey interchanges with Indiana, Michigan, North Carolina, Tennessee, Utah and Vermont, and by special agreement with New York.

New York interchanges with New Jersey and Pennsylvania.

North Carolina interchanges with New Jersey.

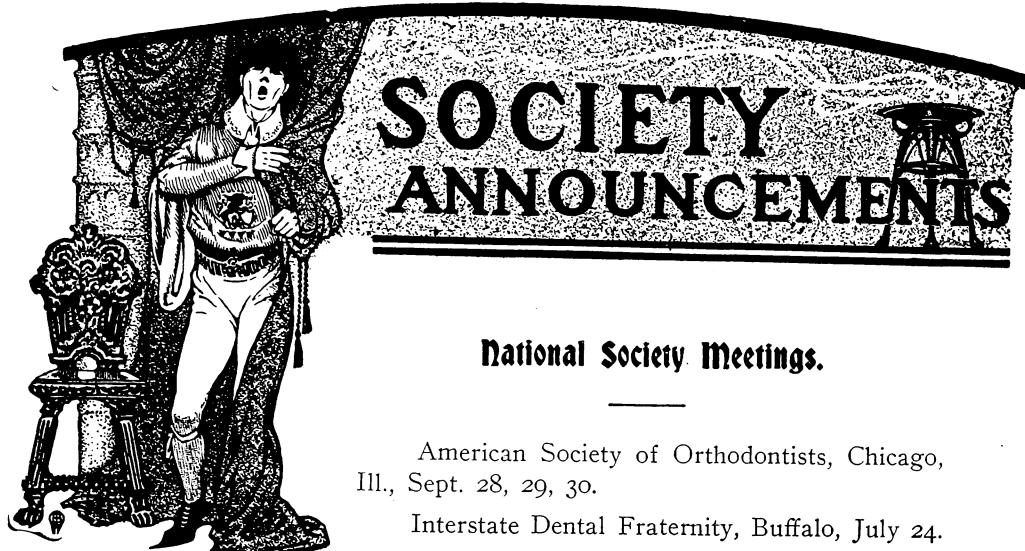
Oklahoma reports interchange with Arkansas.

Pennsylvania interchanges with New York.

Tennessee interchanges with New Jersey.

Utah interchanges with New Jersey.

Vermont interchanges with New Jersey.



National Society Meetings.

American Society of Orthodontists, Chicago,
Ill., Sept. 28, 29, 30.

Interstate Dental Fraternity, Buffalo, July 24.

Lewis & Clark Dental Congress, Portland, Ore.,
July 17-20.

National Dental Association, Buffalo, N. Y., July 24.

National Association of Dental Examiners, Buffalo, N. Y., July 24.

National Association of Dental Faculties, Buffalo, N. Y., July 27.

Northeastern Dental Association, Rutland, Vt., Oct. 18-19.

State Society Meetings.

Delaware State Dental Society, October 4.

Illinois State Dental Society, Springfield, May 8-11, 1906.

Indiana State Dental Association, Indianapolis, July 27-29.

Maine Dental Society, Portland, July 18, 19, 20.

Michigan Dental Association, Detroit, July 10-12.

Montana State Dental Society, February 23, 24, 1906.

New Jersey State Dental Society, Asbury Park, July 19, 20, 21.

Vermont State Dental Society, Brattleboro, May 15, 1906.

Wisconsin State Dental Society, Oshkosh, July 18, 19, 20.



Committee on Clinical Conference of the New Jersey State Dental Society.

The New Jersey State Dental Society extends this special request to any members of the profession having an abnormal or difficult case, to present the same at the session of the Society to be held in the Auditorium, Asbury Park, New Jersey, July 21, 1905, at 3 p. m. Cases may be presented either by a clinic or before gentlemen from whom advice may be gained toward successful treatment. It is hoped that the younger members of the profession will accept this as a special call to them, and not hesitate to present any perplexing cases upon which assistance is desired. The chairman requests notice as soon as possible of the cases to be presented.

Swedesboro, N. J.

J. G. HALSEY, *Chairman.*

South Carolina State Board of Dental Examiners.

The South Carolina State Board of Dental Examiners will meet in annual session at White Stone Springs, July 14, for the purpose of examining applicants. Examination will be both theoretical and practical. Applicants must furnish instruments and material and patients for any demonstration called for by the Board.

Florence, S. C.

B. RUTLEDGE, *Secretary.*

Arizona Board of Dental Examiners.

The Board of Dental Examiners of Arizona will meet at Bisbee, Ariz., July 17, 18, 19, for examination of candidates. Fee \$25.00.

Bisbee, Ariz.

W. P. SIMS, *Secretary and Treasurer.*

Iowa State Dental Society.

The forty-third annual meeting of the Iowa State Dental Society was held in Des Moines, May 2, 3 and 4, 1905. A programme of extraordinary interest had been prepared and the dentists of the State expressed their appreciation by attending in unusual numbers. The dentists of Des Moines entertained the visiting dentists at a "Smoker" on Wednesday evening which was well attended and enjoyed by all. The special feature of the meeting was the organization of the society into



“Special Study Clubs,” the thought and plan of same having been worked out by the president, Dr. J. V. Conzett, and presented to the society in his opening address. Six clubs were formed which will take up work during the year along their respective lines, as follows: Inlay Club, Metal Filling Club, Crown and Bridge Work Club, Orthodontia Club, Prosthodontia Club and Pathlogical Study Club. The officers elected for the ensuing year are: President, Dr. C. N. Work, Ottumwa; vice-president, F. B. James, Wilton Junction; secretary, C. W. Bruner, Waterloo; treasurer, Mae Reynard, Osceola; superintendent of clinics, J. B. Pherrin, Central City. Executive Committee, W. R. Clack, Clear Lake; J. B. Monfort, Fairfield; J. V. Conzett, Dubuque. Executive Council, Wm. Finn, Cedar Rapids; R. S. Bandy, Tipton; J. V. Conzett, Dubuque; F. M. Hunt, Des Moines.

C. W. BRUNER, *Secretary.*

W. D. Miller Dental Club.

The American dentists residing in Berlin have formed the “W. D. Miller Dental Club.” Meetings will occur the first Saturday evenings from October to May, inclusive. The officers are, Dr. F. Foerster, president; Dr. G. H. Watson, vice-president; Dr. Geo. O. Webster, secretary and treasurer.

Northern Indiana Dental Society.

The next meeting of the Northern Indiana Dental Society will be held at Logansport, Ind., September 19-20, 1905.

Logansport, Ind.

F. M. BOZER, D.D.S., *Secretary.*

